EFFECT OF TRAINING EVALUATION METHODS ON EMPLOYEE PERFORMANCE AT THE MINISTRY OF TRANSPORT AND ROADS NAIROBI-KENYA

BY

FIBIAN NANANIA MASINDE

A THESIS SUBMITTED TO THE SCHOOL OF BUSINESS & ECONOMICS IN PARTIAL FULFILLMENT OF REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE DEGREE IN HUMAN RESOURCE MANAGEMENT

MOI UNIVERSITY

2024

DECLARATION

Declaration by Candidate

This is to declare that this thesis is my original work and has not been presented to any University or Institution of higher learning for examination.

Signature:_____ Date:_____

Fibian Masinde

SBPGH/004/18

Declaration by the Supervisors

This is to declare that this thesis has been submitted with my approval as the University

Signature:_____ Date:_____

Dr. Lydia Maket

Department of Management Science and Entrepreneurship

Moi University, Kenya.

Signature:_____ Date:_____

Dr. Diane Uyoga

Department of Marketing and Logistics

Moi University, Kenya.

DEDICATION

I dedicate this work to my family for their moral support, patience and understanding during the entire period of this study.

ACKNOWLEDGEMENT

I take this opportunity to thank God for holding me in the course of my study and for giving me good health to be able to complete the study. My sincere gratitude and appreciation go to everyone who has contributed their time and resources towards the development of this thesis. It was a challenging and long journey.

I would like to thank most sincerely my supervisors, Dr. Lydia Maket, Department of Management Science and Entrepreneurship and Dr. Diane Uyoga Department of Marketing and Logistics for their guidance, commitment and valuable contributions that they made towards the realization and completion of this thesis. Indeed, their support was very instrumental.

My appreciation also goes to the Human Resource staff at the Ministry of Transport and Roads who assisted in the data collection during my study.

ABSTRACT

Employee performance is a key factor determining competitiveness; however, the public sector in Kenya is facing numerous challenges in terms of employee performance. The purpose of this study was to examine the effect of training evaluation on employee performance at the Ministry Roads and Transport Nairobi-Kenya. The specific objectives were; to determine the effect of diagnostic, formative, summative and longitudinal training evaluation methods on employee performance. This study was grounded on Kirkpatrick's Four Levels of Evaluation model and Task-contextual model. The study adopted explanatory research design and used questionnaires to collect data. The target population of this study was all the Ministry of Transport and Infrastructure, HR department staff at the Headquarters Nairobi working in top, middle and lower management levels (340) who deal directly with HR and personnel functions at the Ministry. To determine the sample size, the Krejcie and Morgan table (t table) was applied to give a sample size of 181 employees who were randomly selected to participate in the data collection exercise and to provide the necessary information for the study. A pilot study was conducted to reduce obscurity of questionnaire items and enhance data integrity. The findings revealed 8.1% of the variability in employee performance was accounted for by the combined effects of longitudinal training evaluation, summative training evaluation, formative training evaluation, and diagnostic training evaluation, which was a small portion of the variance. Coefficients of determination showed that a one-unit increase in diagnostic training evaluation was associated with an estimated increase of 32.0% (β=0.320, p=0.001) units in employee performance; a one-unit increase in formative training evaluation was associated with an estimated increase of 33.4%, (β=0.334, p=0.007) units in employee performance; a one-unit increase in summative training evaluation was associated with an estimated increase of 2.4%, (β=0.024, p=0.585) units in employee performance and finally, a one-unit increase in longitudinal training evaluation was associated with an estimated increase of only 2.0%, (β=0.002, p=0.977) units in employee performance, which is an almost negligible effect on employee performance. The study concluded that diagnostic evaluation and formative evaluation had significant positive effects on employee performance (p=0.001<0.05) and (p=0.001<0.05), respectively. However, there was no significant effect of summative evaluation and longitudinal evaluation on employee performance (p=0.585>0.05) and (p=0.977>0.05), respectively. The study recommended for the need to strengthen the diagnostic evaluation and enhance formative training evaluation practices; this would help reinforce learning and provide employees with valuable feedback to enhance their performance.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

OPERATIONAL DEFINITIONS

Diagnostic Training Evaluation: Diagnostic training evaluation identifies employee skills and knowledge gaps before a training program begins. This method helps in tailoring the training content to address specific needs, ensuring relevance and effectiveness. It involves pre-assessment tests and needs analysis to determine the areas requiring improvement (Brown, 2022).

Employee performance – This is achieving and accomplishing specific and well-determined tasks in the organization, these tasks will be measured with well-planned and predefined goals, objectives (Safitri & Lathifah, 2019).

Formative Training Evaluation: Formative training evaluation occurs during the training process to monitor progress and make necessary adjustments. It includes feedback mechanisms, quizzes, and observation to ensure the training remains effective and aligned with learning objectives (Noe & Hollenbeck, 2019).

Longitudinal Training Evaluation: Longitudinal training evaluation examines the long-term effects of training on employee performance and organizational outcomes. It involves periodic assessments over an extended period to track changes and sustainability of training benefits (Phillips, 2021).

Summative Training Evaluation: Summative training evaluation assesses the effectiveness of a training program after its completion. It measures outcomes against objectives using tests, surveys, and performance metrics to determine the program's impact on skills and job performance (Kirkpatrick, 1996).

Training evaluation – This entails interpretation and determining of the effectiveness of a training program to its objectives; it provides ability to compare post-training results to the pre-training objectives of managers, trainers, and trainees (Mathis and Jackson 2016).

ACRONYMS/ABBREVIATIONS

IEA	-	Institute of Economic Affairs
DTE	-	Diagnostic training evaluation
HR	-	Human Resource
HRD	-	Human Resource Development
HRM	-	Human Resource Management
T&D	-	Training and Development
SPSS	-	Statistical Package for Social Scientist

CHAPTER ONE

INTRODUCTION

This chapter provided the introduction and background to the study. In particular, it provided the background of the study, statement of the problem, objectives of the study, hypotheses, significance of the study and the scope of the study.

1.1 Background of the Study

Olaniyan and Oyoo (2018) define training as the dissemination of knowledge or the learning of relevant skills necessary for staff members to perform certain tasks in order to achieve a common goal. Training improves an employee's capacities knowledge and skills (Almohaimmeed, 2017).Elnaga and Imra (2013) define employee training as programs that provide employees with access to new skills, knowledge or opportunities for professional development. It can occur in a number of contexts, such as on or off the job; inside or outside of an organization. Employees are more likely to take in and profit from training when they are eager to learn, think that their place of employment is a good place to learn and can put the skills and knowledge and skill they have acquired to use the right way (Elnaga& Imran, 2013).

Training evaluation is the process of figuring out whether a program is successful in reaching its declared goals and objectives (Asim, 2013). According to the World Bank (2020), assessing a training program include ascertaining its influence, effectiveness and results. It is done to ensure that the program's goals are met and to evaluate how successful the training was. It is feasible to assess how training affects attitude changes, information acquisition and performance. Through evaluation, organizations may determine what needs to be improved and how effective their training programs are. (Simons & Richardson, 2012).

Training evaluation plays a major role in enabling the provision of feedback regarding the delivery of a certain training program (Chan, 2016). The purpose of a training evaluation is to ascertain whether the learners have retained the new knowledge and abilities as a result of applying the training intervention. It is a process to determine whether the idea and delivery of the training program have been met (Shaheen*et al*., 2013). A training program's effectiveness can also be methodically evaluated through training evaluation which considers the program's financial performance as well as its planning, execution and management. (Meyer, Opperman, & Dyrbye, 2013). According to Short (2019), there are four different times when training assessment should take place : diagnostic evaluation before the intervention; formative evaluation during the evaluation; summative evaluation after the intervention; and following the intervention (longitudinal evaluation).

Effective training evaluations provide meaningful feedback that can be beneficial to training facilitators, participants/learners, management, government, experts and other relevant parties (Chan, 2016). Meyer *et al*., (2013) state that evaluations of training can also have a cascading influence on evaluations of the performance of individual employees and the business at large. Training evaluation is conducted to see whether employees' performance has improved and to get comments that may be used to enhance future training sessions. Performance is an achievement or result in terms of system productivity that takes the shape of products or services (Lönnqvist & Laihonen, 2012). Performance refers to the extent to which a person completes activities related to their profession and shows how effectively they are leaving up to the requirements of their position based on the outcomes attained. (Meyer & Allen, 2012).

Therefore, in order to guarantee good performance, it is imperative that the organization invest in training it's staff. Employees are valuable assets to any company; thus, it is

essential to enhance their effectiveness on the work by providing them with appropriate training (Kirigia 2017). Training evaluation is required, according to Mano, Iddrisu, Yoshino and Sonobe (2012), in order to measure and evaluate the success of the program, determine what works and what doesn't and make any necessary program improvements. Data on the participants' knowledge and abilities from before and after the training program, as well as any modifications to employee performance and behavior. After that, this data can be utilized to evaluate the training program's effectiveness and pinpoint areas in need of improvement. Organizations can ensure that their training initiatives are successful in enhancing employee performance and reaching their desired outcomes.

The process of determining areas for improvement by evaluating the efficacy of training programs is known as training evaluation (Gusdorf, 2017). It is usually carried out with the intention of enhancing employee performance, which is characterized as an employee's capacity to achieve goals and objectives set for them by their employer (Rauch, 2018). Training evaluation can be used to examine how well employees are responding to training and how successful it is in attaining its intended aims. It can also be used to assess the impact of training on employee performance and to determine if additional training is necessary (Ostrom, Melchers, Ingold & Kleinmann, 2015).

Employee performance demonstrates the individual actions that lead to the accomplishment of organizational goals; it also demonstrates the effectiveness and efficiency that contribute to organizational goals. As a result, training evaluation plays a crucial role in assessing employee performance since it indicates whether or not offered programs are fulfilling corporate goals and are effective. Additionally, it helps to raise the caliber of training programs by giving feedback to trainers on how effective how effective their instruction was (Gebhardt, 2020).

Furthermore, training evaluation offers a chance to modify and enhance the training programs as well as help pinpoint areas that want work. Training evaluations can also boost employee motivation and morale by offering feedback, which will enhance output and performance (Gebhardt, 2020). This study examined how employee performance at the Ministry of Transport and Infrastructure Nairobi, Kenya is impacted by training evaluation.

1.2 Statement of the Problem

Employee performance has a major impact on whether an organization succeeds or fails as shown by Hameed and Waheed (2011). The evaluation of an individuals' abilities in the workplace is heavily influenced by their performance as an employee, which is why organizations have been putting tactics in place to increase productivity and effectiveness in their workforce. The findings of a World Bank survey conducted in (2018) indicate that staff performance is a critical issue in Kenya's public sector, with the majority of public servants performing below par. Remarkably, just one out of every five civil servants exhibited high-performance levels, the remaining employees were classified as mediocre or poor. A 2020 Institute of Economic Affairs (IEA) research conducted in Kenya, confirmed this tendency, finding that the majority of public sector employees underperformed in sectors like Health, Judiciary, and Education. The reasons given for these poor performance levels were lack of resources, poor training and low motivation. The government has launched a number of initiatives such as training programs, to improve employee performance in order to solve this issue.

The effectiveness of these training programs is still debatable, as it is unclear if line managers and Human Resource (HR) specialists measure employee performance gains that come from training evaluations. In the public sector, staff productivity directly affects service quality and citizen happiness, hence it is imperative that training

programs both contribute to increased productivity and align with corporate goals. Therefore, to plan, carry out, and asses training and development interventions that support gains in knowledge, skills and attitude among public sector workers, collaboration between HR Development (HRD) specialists and line managers is required. To maximize performance in the public sector, it is imperative to fill this research vacuum. Employee evaluations should center on whether or not teams are meeting objectives and whether or not newly learned information is being transferred into the workplace.

Numerous studies have been conducted in this field. Employee performance was shown to be significantly enhanced by training evaluations, for example, according to a study by Mwaniki and Gachathi (2018). Employees who completed training evaluations demonstrated improved performance across a number of metrics. Furthermore, Mwangi's (2019) study discovered that the application of training evaluation improved employee engagement and motivation. According to the study, employees who had finished their training evaluations were more likely to be enthusiastic about their jobs and more open to accepting new responsibilities. Additionally, the study discovered that motivated workers were more likely to stick with their existing employers after completing training evaluation. According to a 2014 study by Kinyanjui and Kariuki, employee happiness was positively impacted by training evaluation. According to the study, workers who had finished their training assessment were happier with their jobs and their employers, and they were also more inclined to tell others about them.

Other research (Yusoff *et al*., 2016; Imran & Tanveer, 2015) indicate that most managers just assess the training intervention's effect on the learner and the teachings they impact. Therefore, it is uncertain, if managers and HR experts keep tabs on how training is implemented to improve worker performance in the public sector. The main

causes of the absence of evaluation of training to ascertain its precise effect on workers performance are insufficient time , money, resources, support, and experience on the part of HR departments (Mburu, Maina &Waithaka, 2017).

Ministry of Transport and Infrastructure in Nairobi, Kenya, offers training programs designed to enhance the abilities and productivity of its workforce. A 2020, survey by the Institute of Economic Affairs in Kenya found that 67% of Kenyan public sector employees said, that, following training, they had successfully shared information with other workers. The little investigation of the contextual efficacy of various training assessment techniques and their effects on worker performance is a prominent research gap. Although the impact of staff training on performance has been studied in the literature, more thorough studies that take training evaluation techniques into account are required. Filling in these gaps will provide a more sophisticated comprehension of how organizations might maximize training initiatives to improve worker performance in diverse contexts. Thus, the purpose of this study was to investigate how employee performance at Nairobi, Kenya's Ministry of Transport and Infrastructure is impacted by training evaluation.

1.3 General Objective

The main objective of this study was to examine the effect of training evaluation methods on employee performance at the Ministry of Transport and Roads Nairobi - Kenya.

1.3.1 Specific Objectives

The specific objectives were:

i. To determine the effect of diagnostic training evaluation on employee performance at the Ministry of Roads and Transport.

ii. To establish the effect of formative training evaluation on employee performance at the Ministry of Roads and Transport.

iii. To evaluate the effect of summative training evaluation on employee performance at the Ministry of Roads and Transport.

iv. To establish the effect of longitudinal training evaluation on employee performance at the Ministry of Roads and Transport.

1.4 Research Hypotheses

$\boldsymbol{H_0 1}$: Diagnostic evaluation has no significant effecton employee performance at the Ministry of Roads and Transport.

$\boldsymbol{H_0 2}$: Formative evaluation has no significant effect on employee performance at the Ministry of Roads and Transport.

$\boldsymbol{H_0 3}$: Summative evaluation has no significant effect on employee performance at the Ministry of Roads and Transport.

$\boldsymbol{H_0 4}$: Longitudinal evaluation has no significant effect on employee performance at the Ministry of Roads and Transport.

1.5 Significance of the Study

The findings of this research were essential for government ministry representatives, employees, human resource managers, and scholars to make knowledgeable choices regarding the assessment of employee training. The public sector's human resources management is curious to know if employee performance is impacted by training evaluations. The results of this study would be helpful to other government agencies that conduct comparable training programs and to the Ministry of Transport and Infrastructure in satisfying the long term demands of the ministry's civil servants. They will also be relevant in the ever – changing labor market.

The study would prove beneficial to government policy makers as it would offer valuable insights into improving training evaluation strategies and their applicability, particularly in relation to employee performance. This can help policy makers create policies that guarantee employee training enhances overall performance in public sector organizations. This knowledge is particularly helpful when creating a range of training initiatives to boost output or when revamping employee training evaluation processes to make sure the results meet expectations and help shape wise training policy decisions.

The study would be helpful to academics and researchers who want to do additional research on various aspects of employee training while also adding to the body of literature already available in the subject of training evaluation. Organizations in the private sector would also profit since it would provide easy access to information on the employee evaluation procedure. Comprehensive understanding of training evaluation as a factor influencing worker performance would also be provided by the study.

1.6 Scope of the Study

The Ministry of Transport and Roads in Nairobi, Kenya was the study's location. Four training evaluation variables namely: diagnostic, formative, summative and longitudinal were examined in this study. This study used an explanatory research approach and used questionnaires to gather data. The Ministry of Transport and Infrastructure HR department employees working in top, medium and lower management levels who directly handle HR and personnel functions at the Ministry (340) were the study's target group. The study was conducted from April 2023 to August 2023.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

A few of the many scholarly and research works that are closely connected to this study were reviewed in this chapter. The principles of employee performance, training evaluation techniques and their impact on employee performance were examined. Theoretical frameworks, research gaps and the conceptual framework that directs this investigation are also covered.

2.2 Concept of Employee performance

The tasks associated with a worker's employment and the quality of their execution are referred to as employee performance (Dessler, 2011). Performance, according to Armstrong (2006), is the accomplishment of measurable goals. Since it depends on both talent and motivation, managers must match their roles to the aims, values and objectives of the organization in order to help employees reach their full potential. Employee performance is determined by the actions taken and the results of those actions taken in order to accomplish specific workplace goals (Pradhan & Jena, 2017). Performance is defined by skill and effort (Obisi, 2011), with the latter being linked to engagement (Anitha, 2014). Input – based definitions emphasize the contributions employees make to their organizations. Results are the main emphasis of outcome-based definitions. According to (Anitha, 2014), performance is defined as the financial and non-financial consequences of employee actions that affect their organization's ability to succeed.

Employee performance is often influenced by a variety of internal and external factors including; personal issues, job suitability, motivation to succeed, working conditions, job training and performance feedback (Woods, 2014). The secret to resolving poor

performance is to identify its root cause. Inadequate output may result from unfulfilled external or internal elements (Dessler, 2011). Employers ought to equip managers with the training skills necessary to accurately identify the root cause of poor performance and identify appropriate remedies.

Khan *et al.* (2011) found that learning opportunities and training can improve organizational performance (Ahmed, Rehman, Asad, Hussain, & Bilal, 2013). Performance deficits can be addressed by putting into practice relevant training intervention (Elnaga& Imran, 2013). The performance gap can be closed with the aid of procedural justice, effective leadership, communication, employee development, flexibility in the face of change and organizational culture (Ahmed *et al*., 2013). There is a positive correlation between organizational success and training (Aragón, Jiménez, & Valle, 2014).

These characteristics are highlighted by high-performing organizations:(1) Efficacy, which is primarily concerned with luring and keeping talent; (2) Quality, which is concerned with exchanging best practices (these organizations, therefore, tolerate poor performance on minimal level); and (3) Innovation, which is defined by uniqueness, encouraging entrepreneurship, and exercising initiative. Lastly, customer service , which is the belief in teaching staff so that they have a good relationship with consumers, and branding and marketing, where the organization focuses on building great teams with a shared and winning mindset (Jesuthasan, 2013).

Thus, as a coping strategy in a corporate environment that is always changing, continuous learning is essential. Work environments change; therefore, employees' skills and talent need to be updated on a regular basis to keep an organization competitive. Employees also need to be flexible enough to adjust to the rapidly changing economic conditions (Amin *et al*., 2013).

To develop the desired knowledge, skills and abilities of the employees, to perform well on the job, requires effective training programs that may also affect employee motivation and commitment (Meyer & Allen, 2012). Employee training programs are those that offer knowledge, skills, or opportunities for professional development. It can happen in a variety of context, on the job or off the job; in the organization or outside organization (Shaheen, Naqvi and Khan, 2013). Effective training programs are required according to Elnaga and Imra (2013), in order for employees to gain the knowledge, abilities and skills required to perform well at work. The dedication and motivation of employees may also be impacted by these initiatives. Effective staff training helps organizations retain the mix of right individuals with the necessary skills, knowledge and attitude (Nnanna 2020).

According to Olaniyan (2008), training is the achievement of relevant skills or provision of necessary knowledge for employees to perform specific tasks to achieve a common goal. As a result, training yields definite outcome which include improved staff competency and capacity for performance. Without proper training, employees both new and current lack the information and skill sets necessary for accomplishing their tasks as effectively as possible. According to Ahmed and Yohanna (2014) employees can change their behavior and attitudes through training, this can produce excellent results for the organization. Similarly, training can guarantee that employees can easily adopt new technologies, boosting both individual and organizational productivity and efficiency (Khan, *et al*., 2016).

Most of the firms, invest in their employees' capacity to acquire new skills that will enable them to cope with uncertain circumstances in the future by employing long-term planning. Employee performance is enhanced as a result, leading to increased dedication and drive (Yip, Devinney& Johnson, 2009). When employees feel

appreciated and have access to training opportunities, they will work tirelessly to achieve organization's objectives and perform exceptionally at work (Imhmed, Kertahadi & Utami, 2014).

Employee training consists of a range of processes involved in making sure that job holders have the right skills, knowledge and attitudes required to help the organization to achieve its objectives (Elnaga and Imra 2013). The main purpose of training employees is to attain behavioral change in those trained. This means that the trainees shall acquire new manipulative skills, technical knowledge and skills on the job in such a way as to aid in the achievement of organizational goals. Training therefore is a deliberate effort to teach specific skills, knowledge and attitudes to serve a specific purpose (Archive, 2008).

Training is not only aimed at improving the employee`s knowledge and skills with regard to his or her functional and administrative duties, but also the acquisition of certain virtues and attitudes like diligence, willingness, integrity, loyalty and responsibility is also within its scope. According to Noe (2010), training refers to the planned effort by a company to facilitate employees' learning of job-related skills. These skills comprise of knowledge or behaviors that are critical for successful job performance. Organizations must incorporate training into every face of their business operations to obtain a competitive edge.

2.3 Concepts of Training Evaluation

By giving employees training, employers may shape their competencies and help them reach their full potential. The capacity to act and apply competencies to fulfill organizational goals is referred to as a subjective qualification (Kijek, Kijek, and Nowak 2020). According to (Shahzadi *et al*., 2014), it is a methodological process of altering work behaviour and competency levels (knowledge, talent and skills),

including employee motivation. Organizations that emphasize the employee training and development prepare strategic training plans that must be in line with the strategy of the entire organization and set personnel policy (Daniels 2013).

Thus, assessing the success of a training process helps shape more training and development programs; it also improves training practices and increases program, or the quantity of knowledge, skills, attitudes or abilities that staff members gain (Alfes 2013). Training evaluation therefore, is a systematic process to assess a program's effectiveness by looking at its outcomes. Additionally, it collects feedback on how to improve software.(Kuvaas 2018). Furthermore, it evaluates if a training program accomplishes the objectives for which it was created and offers flexibility for an assessment meant to improve training initiatives.

Holli and colabrese (2018) define evaluation as the process of contrasting an observable value or quality with a reference point or set of standards. In this case, training evaluation is the process of forming value judgment about the quality of training program and goals. Schalok (2011) states that determining a training program's effectiveness entails gauging the degree to which it is declared performance goals and objectives have been met.

Thus, training evaluation may be defined as the systematic collection and assessment of information for deciding how best to utilize available training resources in order to achieve organizational goals. It refers to process of collecting and measuring the outcomes needed to determine whether training is effective (Noe 2008). An evaluation of a training program can help an organization meet different goals during the life of training program. It comprises assessing its efficacy and if objectives are being fulfilled. Training effectiveness is assessed by looking at the possible advantages and value that

a person and the organization stand to earn from the program. Training evaluation can be categorized into: Diagnostic, Formative, Summative and Longitudinal.

2.3.1 Diagnostic training evaluation

Diagnostic training evaluation is a process of evaluating a training program to determine its effectiveness in achieving specified objectives (Hailey, 2018). It involves collecting data about the program and its participants before, during, and after the training to measure the impact of the training on the participants' knowledge, skills, and attitudes. Diagnostic training evaluation can be used to identify deficiencies in the training program or areas of improvement ((Sánchez-Sánchez & López-González, 2019). Additionally, it may help to determine what changes should be made to the program in order to improve its effectiveness. Diagnostic training evaluation is an important part of designing and assessing the effectiveness of any training program (Keegan & Green, 2013).

2.3.2 Formative training evaluation

Formative training evaluation is a process of assessing the effectiveness of training programs in order to identify areas for improvement (Dauphin-Lamarre, 2013). It involves gathering feedback from learners and analyzing the data to determine how successful the training program was, in achieving its intended outcomes. This type of evaluation helps identify any weaknesses or gaps in the training program design, content, and delivery so that changes can be made accordingly (Patton, 2012). Formative evaluation is a continual process that takes place throughout the training program, allowing for quick and effective modifications to be made that ultimately improve the overall program.

2.3.3 Summative training evaluation

Summative training evaluation is a process used to assess the effectiveness of a training program after it has concluded (Piderit, 2008). It is typically used to evaluate the degree to which the training has yielded the desired outcomes. This type of evaluation involves measuring the changes in knowledge, skills, and attitudes of the participants before and after the training, in order to assess if the desired objectives have been met (Hooper & Riehle, 2014). It typically involves collecting data from tests, surveys, and interviews conducted with participants, and then analyzing the data to measure the impact of the training program.

2.3.4 Longitudinal training evaluation

Longitudinal training evaluation is a process that tracks and evaluates the impact of training over an extended period of time. It is conducted by collecting data from multiple sources, such as surveys, performance analytics, and focus-group discussions. This type of evaluation method is used to measure the effectiveness of training programs and identify areas for improvement (Kapur & Bhattacharjee, 2016). It allows organizations to determine whether the training met its objectives and provided value to employees and the organization. Additionally, longitudinal training evaluation can provide insight into the long-term effects of training on employees and the organization (Mukherjee & Rosen, 2021).

2.4 Theoretical Frameworks

A theoretical framework is a collection of connected concepts, like a theory but isn't always as developed. According to Trochim (2018), a theoretical framework that specifies which variables to measure and what statistical relationships to look for in relation to the issues being examined serves as a guide for research. This study was based on task contextual and Kirkpatrick's Four Levels of Evaluation Model.

2.4.1 Kirkpatrick's Four Levels of Evaluation Model

This model was coined by Donald Kirkpatrick in 1959, where he identified four stages or the four levels of training evaluation which is still popular in carrying out training evaluations. (Schmidt *et al*, 2009). The four levels of evaluation include: reaction, learning, behavior and results. Reaction refers to the manner in which the trainee reacts to the training program. How they felt and the experiences they went through while undertaking the training program are analyzed and assessed.

This level examines the personal feelings of the trainees concerning the training program. Each trainee feels something different during the training program. Therefore, when all these feelings and thoughts are analyzed, a generalization can be drawn about the overall effectiveness of the training program. Evaluators consider this method to be very effective in the training evaluation process because of the results that are produced (Moseley, 2010). The results are highly accurate, which increases the reliability of the process.

The learning level seeks to examine the knowledge gained from the training program (Kirkpatrick, 2010). Training is meant to add value in the minds of the participants in various ways. Trainees are taught how to be better at the work they are doing. After the training program is over, an assessment on the new knowledge acquired is conducted to establish whether the training had an impact on them. In the training programs, managers aim at perfecting the skills that the trainees require to perform their duties effectively.

There are various tools that can be used to assess the learning level. Interviews, questionnaires and observation are all measurement tools that can be used to evaluate the gained knowledge of the trainees. The evaluators may give the trainees

questionnaires in the form of quizzes, which will ask them questions about what they have learnt in the training program.

Behavior is another level of training evaluation. The newly gained knowledge from the training program will alter the character of an individual. This level of training evaluation examines the behavior a trainee portrays after the training program. It examines whether the trainees will put into practice what they have learnt in the training program. The training program is meant to better the skills of the trainees as they execute their duties.

The change of behavior is assessed to determine the effect the training program has on the trainees. Training evaluation uses various tools of measurement to determine the extent of behavioral change in the trainees. Observation is the key tool for measurement. Both evaluators and managers can use observation method in assess the impact of the training program (Berry, 2011).

The Results level assesses the outcome of the training program Training evaluation is dependent on the success rate attached to the training program. However, the tangible outcomes are measured in this level. Managers get to sit and deliberate on the effect of the training program on employee productivity and general performance of the organization. Training evaluation can be measured most effectively using this level of evaluation. There are numerous outcomes that emerge from the training program, which are determined by the training evaluation procedure. An effective training program will impact the organization positively by improving on efficiency and effectiveness.

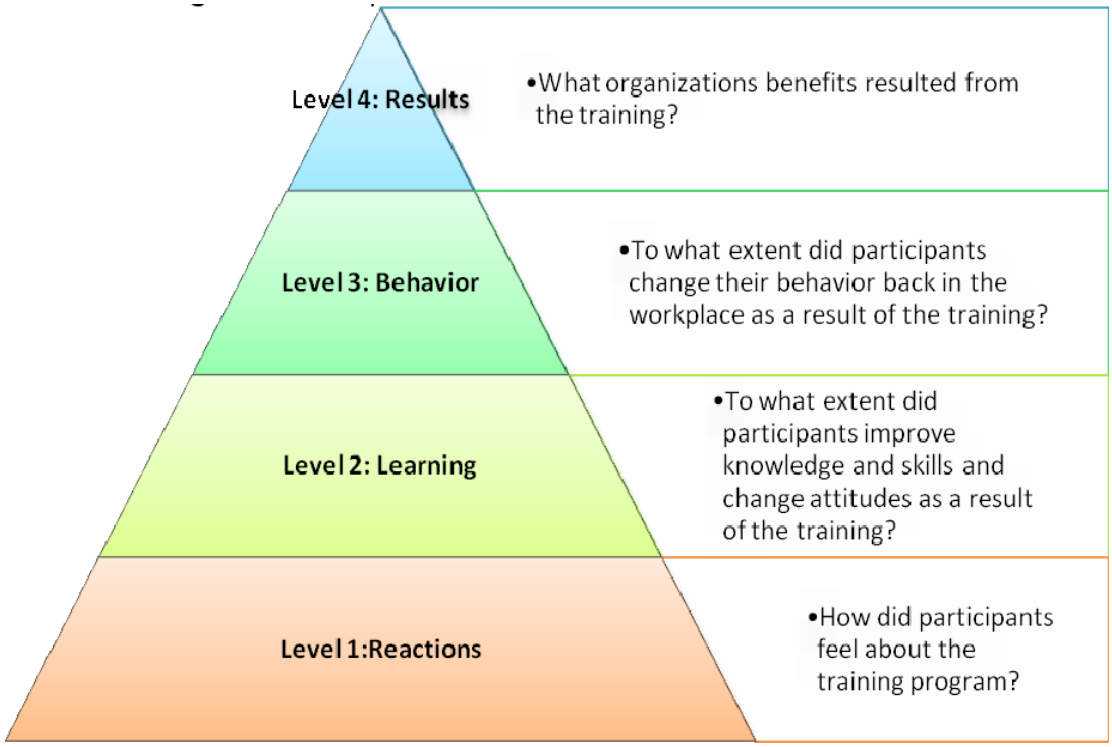

Figure 2.1 - Kirkpatrick's Four Levels of Evaluation Model

Source: Kirkpatrick (1998)

2.4.2 Task-Contextual performance model

This is a model by Borman and Motowidlo (1993), which distinguishes between task performance and contextual performance out of concern that research and practice in the area of employee selection tended to focus only on a part of the performance domain and tended to exclude or downplay another part that is also important for organizational effectiveness. To explain how these two parts of the performance domain differ, they suggested that the part that tended to be most frequently recognized and targeted by selection research and practice refers to activities like those that usually appear on formal job descriptions.

They called it task performance and suggested that it might take either of two forms. One involves activities that directly transform raw materials into the goods and services that are the organization's products. Such activities include selling merchandise in a

retail store, operating a production machine in a manufacturing plant, teaching in a school, performing surgery in a hospital, and cashing checks in a bank.

The second form of task performance involves activities that service and maintain the technical core by replenishing its supply of raw materials, distributing its finished products, or providing important planning, coordination, supervising, or staff functions that enable it to function effectively and efficiently. When these task activities are performed effectively, they are behavioral episodes with positive expected organizational value because they facilitate the production of organizational goods and services. When performed ineffectively, however, they can have negative expected value because they might hinder the production of organizational goods and services. Thus, the domain of task performance includes behavioral episodes that represent task activities that are performed well and behavioral episodes that represent task activities that are performed poorly, with corresponding variability in their expected organizational value.

They argued that the part of the performance domain that was relatively ignored in selection research is also organizationally valuable, but for reasons different from those that explain the organizational value of task performance. They called it contextual performance because they defined it in terms of behavior that contributes to organizational effectiveness through its effects on the psychological, social, and organizational context of work. Individuals can contribute through the context of work in several different ways. One way is by affecting other individuals in the organization so that they become more likely to carry out organizationally valuable behaviors themselves. For instance, to the extent an individual's actions promote positive affect in others, defuse hostilities and conflict, and encourage interpersonal trust, such actions will have positive expected organizational value because their effects on the social

context of work improve interpersonal communication and cooperation and make it easier to coordinate individuals' efforts on interdependent tasks.

Another way to contribute through the context of work is by increasing the individual's own readiness to perform organizationally valuable behaviors. Things people do to develop their own knowledge and skill, for example, have positive expected organizational value because enhancements in knowledge and skill should improve their performance in areas related to the enhanced knowledge and skill. Similarly, actions such as consuming alcohol or drugs at work have negative expected value because they diminish an individual's readiness to perform effectively. Other actions such as actively resisting the debilitating effects of stressful work situations and taking the initiative to carry out organizationally valuable actions instead of just responding passively to situational demands also fall under the category of behaviors that have positive expected value because of their effects on an individual's readiness to contribute to organizational objectives.

2.5 Empirical Review on Training Evaluation and Employee Performance

Training evaluation plays a crucial role in determining the effectiveness of training programs and their impact on employee performance. Evaluating training programs allows organizations to identify strengths and weaknesses, make informed decisions for improvement, and ultimately enhance employee performance. Numerous studies have explored the relationship between training evaluation and employee performance, highlighting its positive influence. For example, a study by Smith and Brown (2021) found that organizations that conducted rigorous training evaluations experienced higher levels of employee performance compared to those that did not.

The evaluation process helped identify gaps in employee skills and knowledge, leading to targeted training interventions that improved performance. Another study by Johnson et al. (2020) examined the impact of specific evaluation methods on employee performance. They found that when training evaluations included behavioral assessments and feedback, employees demonstrated better performance outcomes. This suggests that evaluating the application of training in real work situations enhances employee performance.

Furthermore, a meta-analysis conducted by White *et al.* (2019) examined the overall relationship between training evaluation and employee performance. The analysis revealed a positive and significant correlation between training evaluation and performance outcomes. This finding further supports the importance of evaluating training programs to enhance employee performance.

Otuko, Chege and Musiega (2013) assessed the effect of training dimensions on employee's work performance in Mumias Sugar Company in Kakamega County, Kenya by finding out; the effects of training needs assessment on employee performance, the effects of training contents on employee performance and the effects of training evaluation on employee performance. Results showed that there was a positive and significant effect between training needs assessment and employee performance in Mumias Sugar Company Limited..

According to Kirkpatrick (2008) training evaluation process consists of a series of four levels. The levels, in order, are reaction, learning, behaviors, and results respectively. The reaction level measures how trainees (the people being trained), reacted to the training. This helps management understand how well the training was received by your audience. It also helps management to improve the training for future trainees,

including identifying important areas or topics that are missing from the training. The learning level measures what the trainees have learned.

When management planned the training session, they hopefully started with a list of specific learning objectives which are the starting point for measurement. This is important because knowing what the trainees are learning and what they are not will help management improve future training. At the behaviour level, management evaluates how far the trainees have changed their behavior, based on the training they received. Specifically, this looks at how trainees apply the information. It's important to realize that behavior can only change if conditions are favorable. At the results level, management analyzes the final results of the training. This includes outcomes that the organization has determined to be good for business and good for the employees (Kirkpatrick, 2008).

2.5.1 Diagnostic training evaluation and employee performance

The methodical investigation and evaluation of organizational performance and training through data collection, analysis and assessments is known as diagnostic training evaluation or DTE. (Simons 2014). Training diagnostics evaluation acts as a bridge between understanding a training department client's needs and performance problems and delivering needed requirements or specifications to resolve it (Nixon and Burns 2015). DTE is an effective method of assessing employee performance. It is designed to identify the strengths and weaknesses of employees, determine training needs, and measure the success of the training program. DTE is typically conducted by an external consultant who evaluates an employee's technical knowledge, their social and interpersonal skills, and their attitude towards their work and the organization (West, 2020).

The diagnostic evaluation uses the traditional monitoring of training progress and ensuring a focus on exceptions and deviations from set standards of performance for corrective actions and tight controls over strategies and operations (Simons 2014). Additionally, examination of key performance metrics enables them to determine the root causes of problems and create solutions to enhance performance for both the training organization and its clients (Angle and Perry 2011). Results can include improved content development and better strategic alignment to business goals. Diagnostic activities often follow the process of strategic alignment, in which training leaders work with their clients to determine needs and understand client objectives. In addition, strategic alignment allows learning leaders to uncover problem areas so they can execute diagnostics (Meyer, Allen and Smith 2013). Despite the importance of diagnostics evaluation in ensuring peak proficiency among individuals and organizations, many training industry experts consider it to be one of the least developed and understood skills among training professionals.

Research by Welch (2019) found that DTE improved employees' skills in identifying problems, analyzing data, and responding quickly to customer needs. Additionally, DTE was found to enhance employees' knowledge of the organization's processes, policies, and procedures. This resulted in improved employee productivity and satisfaction. DTE has also been shown to reduce turnover and absenteeism. Research by Robinson (2019) found that employees who received DTE tended to be more satisfied with their job and more committed to their organization. Additionally, employees who received DTE reported higher levels of morale and job satisfaction than those who did not. Overall, the evidence suggests that DTE has a positive effect on employee performance. It can help identify training needs, enhance knowledge and skills, improve productivity and job satisfaction, and reduce turnover and absenteeism.

As such, DTE is therefore a useful tool for evaluating and enhancing employee performance.

2.5.2 Formative training evaluation and employee performance

Formative training evaluation has been identified as an effective tool for improving employee performance (Ferrari, 2020). By developing individualized learning pathways, organizations save time and resources and can train more individuals in a shorter amount of time (Angle and Perry 2011). Formative evaluation informs trainers about whether the trainees have learned and they have an indicator qualification for how the trainers should plan their next sessions (Wuest & Fisette, 2012). There are four main components of formative assessment: (i) Explaining learning objectives and success criteria; (ii) increasing the quality of inquiry/dialogue; (iii) increasing the quality of marking/ feedback/record keeping; and (iv) using self and peer assessment.

The main goal of formative training evaluation is to monitor employee training to provide ongoing feedback that can be used by instructors to improve their training and by employees to improve their learning (Otuko, Chege and Musiega 2013). More specifically, formative evaluation: help employees identify their strengths and weaknesses and target areas that need to be worked on so as to get better. Additionally, formative evaluation ensures that a training program or training activity is feasible, appropriate, and acceptable before it is fully implemented. It is usually conducted when a new program or activity is being developed or when an existing one is being adapted or modified (Meyer, Allen and Smith 2013).

Formative evaluation is more focused on how the learning experience is progressing, as opposed to how much the user has learned. It is one of the most beneficial assessment strategies as it can help trainees to understand what they still need to learn as they progress through the course (Aguinis and Kurt 2019). This approach can be used to

monitor learning or training style, provide feedback, and let instructors modify their teaching their training style. Thus, formative assessments enable training departments to create a new way of delivering knowledge by understanding what an employee already knows and skill gaps that need additional training.

According to research, formative training evaluation can help identify gaps in employee knowledge and skills, allowing employers to develop targeted strategies and strategies to improve performance (Park, 2021). These strategies can include improved training, providing additional resources to support employee learning, or providing managerial guidance and coaching (Hanson, 2019). Employers can also use formative training evaluation to identify areas where employees excel, encouraging them to use those strengths to further develop their performance (Stewart, 2020). The evidence suggests that formative training evaluation is an effective tool for improving the performance of employees (Stewart, 2020).

Research has found that when organizations use formative training evaluation, they are more likely to see improved performance outcomes in employees (Kaminsky *et al.*, 2019). For example, a study of over 500 managers found that those who completed formative training evaluation had higher levels of performance than those who did not (Jeon *et al*., 2020). Additionally, a study of over 1,000 employees found that formative training evaluation had a positive effect on employee engagement and satisfaction (Wang *et al*., 2021).

2.5.3 Summative training evaluation and employee performance

Summative training evaluation is an assessment method used to evaluate the effectiveness of a training program. It involves collecting data on employee performance before and after training to measure the impact of the training on employee performance (Rafferty, 2016). Recent research suggests that summative training

evaluation can have a positive effect on employee performance. For example, a study by Waite and Heron (2018) found that summative training evaluations can lead to an increase in employee motivation and an improvement in job performance. They examined the effects of summative training evaluations in a large engineering firm and found that those who received the evaluation reported increased motivation and better job performance.

This study also discovered that employees who received summative training evaluations had higher job satisfaction and greater engagement in the learning process. Similarly, another study by Wartinger (2019) found that summative training evaluations can lead to improved job performance. The study examined the effects of summative training evaluations on job performance in a retail setting. The researchers found that those who received the evaluation reported improved job performance compared to those who did not receive the evaluation. They also found that those who received the evaluation had higher job satisfaction, increased motivation, and improved confidence in their job performance.

Thus, the research suggests that summative training evaluations can have a positive effect on employee performance. Summative evaluations can lead to increased motivation, improved confidence, and higher job performance. Organizations should consider implementing summative training evaluations in order to maximize the potential of their workforce. Additionally, critical studies of summative evaluation have indicated that selected studies for meta-analysis are problematic in terms of the principles of methodological and constructive assessment, and that qualitative and empirical work on formative assessment is needed (Bennett, 2011; Briggs *et al.*, 2012 Filsecker&Kerres, 2012; McMillan *et al*., 2013).

In summary, the research suggests that summative training evaluations can have a positive effect on employee performance (Waite & Heron, 2018; Wartinger, 2019). They can lead to increased motivation, improved confidence, and higher job performance, ultimately resulting in greater job satisfaction and engagement in the training process (Rafferty, 2016). Thus, organizations should consider implementing summative training evaluations in order to maximize the potential of their workforce.

2.5.4 Longitudinal training evaluation and employee performance

There has been an increasing amount of study conducted on the impact of longitudinal training evaluation on employee performance. These studies concluded that longitudinal evaluation of training can provide valuable feedback to employees, trainers and employers, which can then be used to improve the quality of their training programs. A more recent study by Drury (2017) found that longitudinal training evaluation had a significant positive effect on employee performance.

On the other hand, the study also found that short-term measurements of training effectiveness often failed to detect any significant improvements in employee performance. This suggests that longitudinal evaluation of training may provide more meaningful information and help employers to better understand how their employees develop over time. Overall, research has suggested that longitudinal training evaluation may have a positive effect on employee performance. Longitudinal evaluations may provide employers with more insightful data and a better knowledge of the long-term development of their employees. Consequently, it would appear that a long-term training assessment could be a helpful strategy to increase employee output.

2.6 Summary of Literature Review and Research Gap

Effective training programs guarantee that employees meet goals and completely understand the competencies and skills required to carry out a certain task. They also

assist employees in familiarizing themselves with the required new technological advancements. The literature review produced a few positive findings. Employers have proven that recording employee performance outcomes through training evaluation is an effective method. For example, Bhardwaj, Mankad, and Lunawat (2015) found that, employee performance was improved by implementing periodic training assessments. Further research according to (Liu, 2012; Ghaziani, 2016), has shown that employees who received feedback on their training evaluation, generally had higher job satisfaction and were more productive at work.

However, studies have revealed certain restrictions on the assessment and measurement of individual differences that can impact the effectiveness of training evaluation in predicting post-training employee performance outcomes. For instance, Pillay and Seedat (2018) discovered that individual variations may affect how well training evaluations predict the performance of employees. Additionally, other studies have found that it could be challenging to distinguish the impact of training evaluation from other factors that could affect employee performance (Wang *et al*., 2018). Research has generally shown that training evaluation could be helpful in determining how well employees perform..

However, there is still lack of research on the effectiveness of training evaluation and its ability to accurately measure employee performance outcomes. Future research should examine the extent to which individual traits and other external factors can impact the relationship between employee performance and training evaluation. In relation to this study, there is still limited literature on training evaluation and its implication on employee performance in the public sector in Kenya. Rather of, taking training evaluation into account as a component, a significant portion of research conducted in Kenya in the past has concentrated on how training influences employee

performance. It is against this background that the study seeks to examine the effect of training evaluation on employee performance in public sector, with a particular focus on the Ministry of Transport and Infrastructure. See table 2.1 below.

Table 2.1: Research gaps

Scholar	Study	Major findings	Limitation & Gaps
Mukherjee, A., & Rosen, D. (2021).	Longitudinal training evaluation: A mixed-methods study to assess the impact of a multi-year training program.	The study found that the multi-year training program exhibited significant skill development which included enhanced technical expertise, problem-solving abilities, and leadership skills. The findings suggest that longitudinal training evaluation can effectively contribute to skill development overtime	However, there is a research gap in investigating the long-term organizational impact of such training evaluation programs. Future research should focus on bridging this gap to provide insights into the broader organizational implications and effectiveness of multi-year training evaluation
Bhardwaj, S., Mankad, A., &Lunawat, C. (2015)	Impact of Training Evaluation on Employee Performance	The study found a significant positive relationship between training evaluation and employee performance. Employees who received feedback and had their training evaluated demonstrated higher levels of performance compared to those who did not receive evaluation.	However, there are research gaps related to mediating and moderating factors, long-term impact, and comparative analysis that could be addressed in future studies. Investigating these areas would contribute to a more comprehensive understanding of the impact of training evaluation on employee performance and inform the design of effective evaluation practice.
Chan, K.C.M. (2016)	A Critical Analysis of a Training Program Evaluation: A Case Study on the Effectiveness of a Teacher Training evaluation Program	The study found that participants of the teacher training evaluation program provided positive feedback regarding their learning experience	There are research gaps related to the adoption of a mixed-methods approach, the inclusion of a comparison group, the examination of long-term impact on student outcomes, and the consideration of contextual factors. Addressing these research gaps would contribute to a deeper understanding of the effectiveness and implications of teacher training program

			evaluations, ultimately leading to the improvement of training practices in the education sector
Dauphin-Lamarre (2013)	Formative Training Evaluation: A Practical Guide	The key finding of Dauphin-Lamarre's guide on formative training evaluation is the importance of integrating evaluation into the training development process. Formative evaluation allows for ongoing feedback and assessment during the training program's design and implementation stages	There is a research gap related to measurement and evaluation tools that could be addressed in future studies. Further research in this area would enhance the practical application of formative training evaluation by providing trainers and evaluators with effective tools and methodologies to assess and improve training programs
Drury (2017)	The Effect of Longitudinal Training Evaluation on Employee Performance	The finding showed that ongoing evaluation of training programs positively impacts employee performance. The study revealed that employees who received continuous evaluation and feedback throughout the training period demonstrated higher levels of performance compared to those who did not receive ongoing evaluation	There are research gaps related to mechanisms and factors influencing the relationship, contextual factors, and the inclusion of comparison groups and control conditions. Addressing these research gaps would enhance our understanding of the effectiveness and optimal implementation of longitudinal training evaluation in improving employee performance
Ghaziani, R. (2016)	Linking training evaluation to performance: An empirical analysis	The empirical analysis conducted by Ghaziani highlights the positive relationship between training evaluation and performance outcomes. Effective training evaluation practices are associated with higher levels of employee performance in organizations	There are research gaps related to mechanisms and mediators, the long-term impact of training evaluation, and comparative analysis of different evaluation methods. Addressing these research gaps would enhance our understanding of the underlying processes

			and optimal strategies for linking training evaluation to performance outcomes
Hailey (2018)	Diagnostic training evaluation	The study conducted by Hailey sheds light on the effectiveness of diagnostic evaluation in identifying organizational or programmatic issues and guiding improvement efforts	There are research gaps related to comparative analysis, implementation challenges, and evaluation outcomes and impact. Addressing these research gaps would contribute to a deeper understanding of the strengths, limitations, and practical implications of diagnostic evaluation as a valuable evaluation approach
Hanson, J. (2019)	Ten Benefits of Formative Training Evaluation. E-learningIndustry	Hanson's article highlights the benefits of formative training evaluation in enhancing the effectiveness and efficiency of training programs	There are research gaps related to quantitative evidence, best practices and guidelines, and the long-term effects of formative evaluation. Addressing these research gaps would strengthen the understanding and application of formative training evaluation, providing empirical evidence, practical guidance, and insights into its long-term impact

2.7 Conceptual Framework

A conceptual framework is a comprehensive explanation of the phenomenon being studied, followed by a pictorial and visual representation of the main study variables (Mugenda and Mugenda 2003). In this study, the Baron and Kenny (1986) model will be used to support the conceptual framework. The model helps determine whether there is a significant relationship between the independent and dependent variables. The relationship between the studied variables in this investigation are depicted in figure 2.2 below.

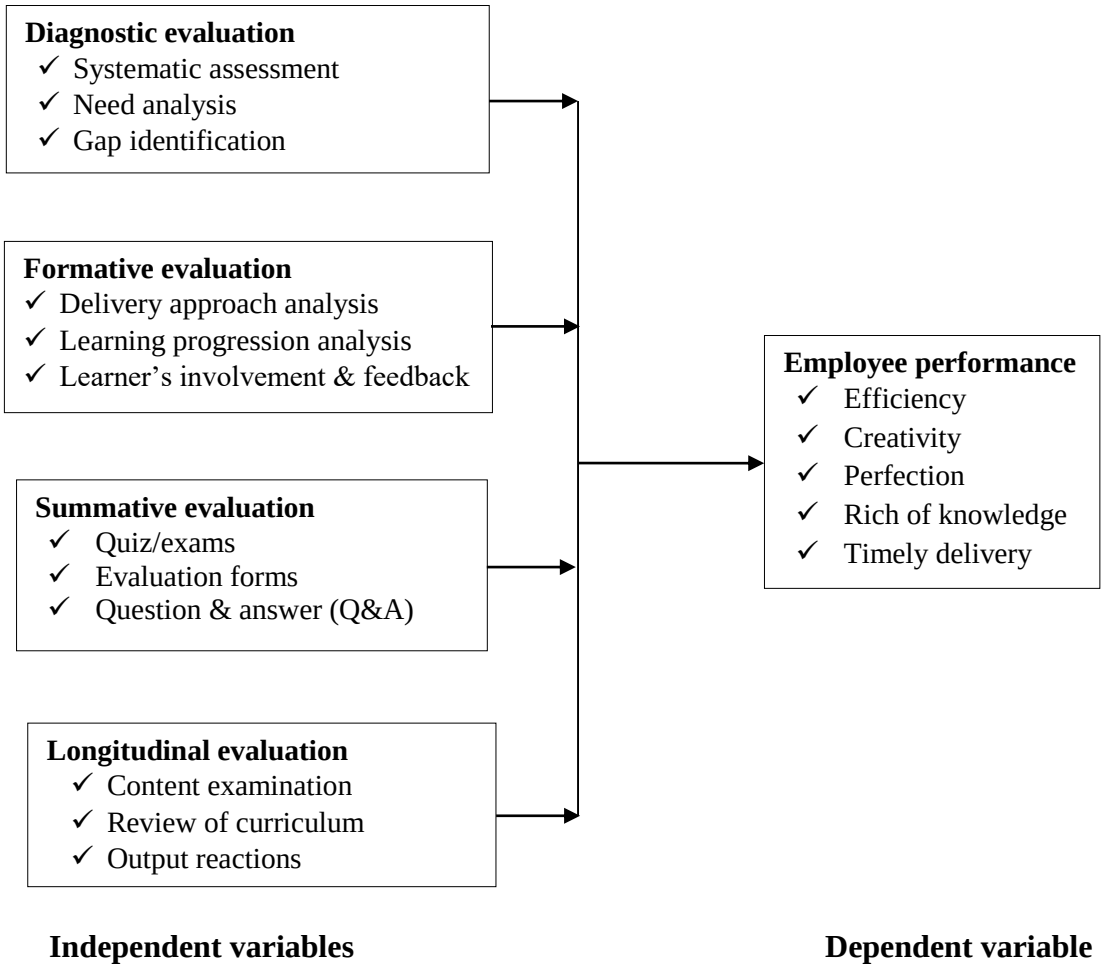

Figure 2.2: Conceptual framework

Source: (Author, 2023)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter presents the methodology adopted in carrying out the study. It covered the following aspects: research design, location of the study, population of the study, sample and sampling method, instruments used to collect data, procedure, analysis and presentation of data.

3.2 Research Design

According to Kothari (2004) research design is a strategy for collecting and applying data in order to obtain the needed information precisely enough or to appropriately test the hypothesis. This study adopted explanatory research design. It was quantitative because the null hypothesis put out in the first few chapters of this study were tested for validity were tested using non-parametric tests and correlation coefficients calculated from empirical data. Because it allowed respondents to provide pertinent information on the study's interest topics, this design was typically appropriate (Cooper & Schindler, 2011). This research design was chosen, since it enabled the researcher to watch the respondents in their natural habitat without tampering with it.

3.3 Research Area

This study was conducted at the Ministry of Transport and Infrastructure in Nairobi. The mandate of the Ministry of Transport and Infrastucture is to: Develop and maintain sustainable Roads and Transport to facilitate efficient movement of goods and people. Develop and enforce regulations and standards to ensure safe, secure and efficient Roads and Transport systems. Undertake research and implement the findings for an efficient Roads and Transport system. Mobilize resources and build capacity for technical and professional staff at the ministry.

3.4 Target Population

A population is any group of people, things or events that have certain observable traits. According to Creswel (2003) target population is a large population from which sample population is to be chosen. In this case, the target population of this study was all 340 HR department staff working in top, middle, and lower management levels who are responsible for HR and personnel functions at the Ministry. According to Mugenda and Mugenda (2003), in order for the study to generalize its findings, the target population must possess observable features. It is assumed by this definition that the population was homogeneous.

Table 3.1: Target Population

Strata	**Population**
Top level management	19
Middle level management	139
Lower level of management	182
Total	**340**

Source: (Ministry of Transport and Infrastructure – HR Department, 2023)

In this instance, Ministry of Transport and Infrastructure - department of HR was specifically chosen to ensure that every employee within the division participated in the study. Similarly, personnel who provided information deemed very significant to the investigation were chosen using a straightforward random sample procedure. Additionally, the Krejcie and Morgan table (t table) was used to give an appropriate sample size of one hundred and eighty-one (181) employees who completed questionnaires and submitted data, as shown in table 3.2 below.

Table 3.2: Population

Strata	Population	Sample Proportion
Top level management	19	10
Middle level management	139	74
Lower level of management	182	97
Total	**340**	**181**

Source: (Ministry of Transport and Infrastructure – HR Department, 2023)

3.5 Data Collection Methods and Instruments

The purpose of data collection was to capture quality evidence that answered all the research questions posed in this study. The researcher obtained data from primary sources using self-administered questionnaires as elaborated below.

3.5.1 Data Collection Instruments

This study obtained data through use of Questionnaires. Rotich (2016), reiterates that questionnaire is affordable and simple to use. In this study, the questionnaire was used to collect data from all 181 staff in top, middle and lower management levels. This is chosen because study participants are presumed to be intelligent and capable of providing accurate answers to inquiries. Particularly for closed questions, creating codes for and interpreting questionnaires is comparatively rapid and simple (Cooper & Schindler, 2011).The questionnaire was selected as suitable tool for data collection in this study for the reasons listed above. Furthermore, before being given to respondents, the instrument underwent a pre-test for validity and reliability.

3.5.2 Data Collection procedure

Data from primary sources was gathered for this research. Given the nature of the study, the researcher physically distributed questionnaires (through drop and pick approach) to the respondents and followed up for the completion to ensure they are all completed and returned within 5 days.

3.6 Measurement of variables

Variables are those simplified portions of the complex phenomenon that is intended to study. They have to always be quantifiable. The table below shows how study variables were measured.

Table 3.3: Measurement of variables

Independent Variables	Measurement scale	Data Analysis	Empirical studies	Specific Tool
Diagnostic training evaluation	Nominal and Scale	Descriptive and Explanatory	Simon 2014; Angle & Perry 2011.	Mean, standard deviation, correlation analysis
Formative training evaluation	Nominal and Scale	Descriptive and Explanatory	Wuest&Fisette 2012; Otuko, Chege&Musiega 2013.	Mean, standard deviation, correlation analysis
Summative training evaluation	Nominal and Scale	Descriptive and Explanatory	Andritis 2019; Bennette 2011	Mean, standard deviation, correlation analysis
Longitudinal training evaluation	Nominal and Scale	Descriptive and Explanatory	Briggs *et al.*, 2012; Sánchez-Sánchez, J., & López-González, L. 2019.	Mean, standard deviation, correlation analysis
Employee performance	Nominal and Scale	Descriptive and Explanatory	Pradhan & Jena 2017; Anita 2014; Woods 2014; Ahmed *et al.*, 2013.	Mean, standard deviation, correlation analysis

Source: (Researcher)

3.7 Validity and Reliability of Research Instruments

3.7.1 Pilot Study

To improve data integrity and lessen the obscurity of questionnaire items, pilot research was carried out. A pilot research that uses a sample that is one -tenth of the entire sample

and has homogenous characteristics is suitable, according to Mugenda & Mugenda (2003). As a result, the questionnaire was tested out on Eighteen (18) state department of Economic Planning staff members, these respondents were left out of the final data gathering procedure. This assisted in determining if the techniques and processes employed in the study were feasible, as detailed below;

3.7.2 Reliability of research instruments

According to (Cochran, 2012), reliability refers to consistency of a measuring instrument that is the extent to which a measuring instrument contains variable error. Through piloting, questionnaires were distributed to 18 respondents who were not part of the sample. Cronbach's Alpha test was carried out to test reliability of the instrument; the results showed coefficients above 0.7, for all variables, (i.e, 0.795, 0.881, 0.898 and 0.865). This indicates that the variables and the instrument are reliable as shown in table 3.4 below.

Table 3.4: Reliability test

	Cronbach's Alpha value	No. of Items
Diagnostic training evaluation	.795	18
Formative training evaluation	.881	18
Summative training evaluation	.898	18
Longitudinal training evaluation	.865	18

Source: (Survey, 2023)

3.7.3 Validity of research Instruments

According to McCready (2012) validity is the degree to which a measuring instrument measures what it is supposed to measure. Some questions may be unclear and ambiguous and therefore, questionnaire testing is necessary to identify and eliminate such problems. Validity therefore has to do with how accurately; the data obtained in the study represent the variables of the study. Validity of the instrument was upheld

from the very beginning of its conception. To ascertain the validity of research instruments, significant input from the researcher, supervisors and pertinent academic staff was taken into account.

3.8 Data Analysis and Presentation

Data analysis is a process used by researchers to condense data into a story, which is then interpreted to derive insights. The data analysis process helps to divide vast amounts of data into more manageable pieces. In this study, both qualitative and quantitative data analysis methodologies were adopted due to the nature of the study.

3.8.1 Descriptive analysis

With the use of Statistical Package for Social Sciences (SPSS) version 21.0, analytical tool, data was coded to facilitate computer input or entry. The actual data analysis was carried out by use of descriptive statistical approaches; which included measures of frequency (i.e. Count, percentage, frequency); measures of central tendency (i.e. mean, median, and mode) and measures of dispersion/variance i.e., range, standard deviations and variance.

3.8.2 Inferential analysis

In order to determine the relationship between study variables, correlation and regression analysis were adopted. By using p-values from regression test, the entire stated hypothesis was tested to prove the null hypothesis stated in the early chapters of this study.

3.9 Statistical Model

The model below was formulated for the researcher to statistically determine the contribution made by the independent variable on the dependent variable. This study adopted multiple regression model equation as follow:

$$\mathbf{Y= \beta_0+ \beta_1X_1+\beta_2X_2+ \beta_3X_3+ \beta_4X_4+ \varepsilon}$$

Where;

Y is the dependent variable (employee performance),

β_0 is the regression constant,

β_1, β_2, β_3 and β_4 are the coefficients of independent variables,

X_1 is diagnostic evaluation,

X_2 is formative evaluation,

X_3 is summative evaluation,

X_4 is longitudinal evaluation;

ε is the standard error

3.10 Diagnostic tests

This study used regression technique in order to determine the relationship between training evaluation process and employee performance. However, before running the regression the researcher was required to do a number of diagnostic tests to check for violation of the assumptions of the classical linear regression. These tests included: Linearity, Normality, Multi-collinearity and homoscedasticity tests.

3.10.1 Normality Test

Multiple regression assumes that the data under test is normally distributed (Osborne & Waters, 2014); and non-normally distributed variables can distort relationships and significance tests. It is assumed that errors are normally distributed, and that a plot of the values of residuals was approximate a normal curve. There are several ways of testing normality such as Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson Darling. For this study, Shapiro-Wilk test was used as it is the most effective normalcy

test (Razali & Wah, 2011). The results of the variables were all above 0.05 ($p > 0.05$), this confirmed that the data was normaly distributed.

3.10.2 Linearity Test

Linearity was achieved by plotting residuals values and checking for the spread of residuals around a horizontal line. The residuals' normal distribution was determined by the researcher by looking at a normal Predicted Probability (P-P) plot.

3.10.3 Multicollinearity Test

Multicollinearity is where there is high degree of correlation between the independent variables. The researcher was able to interpret regression coefficients as the effects of the independent variables when there was low collinearity (Keith,2006). In order to test for multicollinearity, variance inflation factor (VIF) was computed and their values observed. Bowerman and Connell (2006) stated that lower levels of VIF are generally prefarable, while higher levels of VIF are known to affect adversely the result associated with a multiple regression analysis. The findings demonstrated that there is no multi-collinearity because the tolerance values were more than 0.1 and the VIF values were less than 10.

3.10.4 Homoscedasticity Test

Homoscedasticity refers to the assumption that the variances of the errors or residuals are constant across all levels of the independent variables. In simpler terms, it means that the spread of the residuals should be consistent throughout the range of predictor values. In this study, homoscedasticity was tested using Breusch-Pagan test and graphical analysis (e.g., scatter-plot of residuals against predicted values).

3.11 Ethical Consideration

Ethics refers to a system of principles which can significantly change previous opinions about choices and actions. Research ethics include protocols for routine work, maintaining the dignity of participants and sharing research results (Cochran, 2012). In regard to this study, the data collected was purely intended for academic purposes and not any other intentions. In addition, respondent's right to confidentiality was maintained and honoured throughout the study period. All legal requirements, including; data protection, informed consent, respect to privacy and other permissions were adhered to as requirements for ethics in research.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Overview

This chapter describes the actual findings as per the feedback from the respondents and which linked them to the objectives of the study. It encompasses the demographic information, descriptive tests, inferential statistics and hypotheses testing and their interpretations.

4.2 Response rate

The researcher distributed 181 questionnaires and 179 were returned representing 98.8%. However, 2 of the questionnaires representing 1.2% were not returned by the respondents due to their busy schedule. Usually, a response rate of 70% and above is ideal for a study since it is an excellent representation of the population to avoid biasness. Thus, a response rate of 98.8% was found suitable for analysis and making interpretations and conclusions for this study. The response rate is presented on Table 4.1.

Table 4.1 - Response rate Source:

	Questionnaires			
Respondents	**Returned**	**Not returned**	**Total**	**Response rate**
HR department	179	2	181	98.8

(Survey, 2023)

4.3 Demographic interpretation

4.3.1 Gender representation

The respondents were asked to state their gender. The findings revealed that majority of them 92(51.4%) were female, while 87(48.6%) were male. Thus, this

study gave almost equal representation to both genders to avoid biasness as shown in table 4.2 below.

Table 4.2: Gender proportion

	Frequency	Percentage (%)
Male	87	48.6
Female	92	51.4
Total	179	100.0

Source: (Survey, 2023)

4.3.2 Level of education

The researcher sought to determine the level of education for all the respondents, majority of them 79(44.1%) were graduate, 61(34.1%) had obtained various college trainings at Diploma level, 34(19.0%) had postgraduate qualifications, while a few 5(2.8%) had other certificates as shown in figure 4.1. This implies that most of the respondents were knowledgeable enough to provide the required data/information relating to the variables under study.

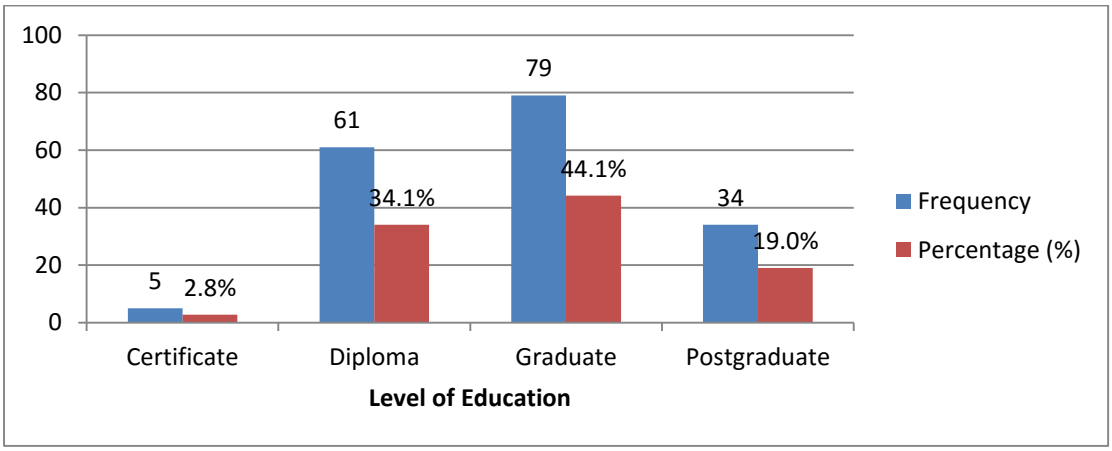

Figure 4.1: Education level

Source: (Survey, 2023)

4.3.3 Duration of Service at the Ministry of Transport and Infrastructure

The respondents were asked to state the period they had served at the Ministry of Transport and Infrastructure. The findings revealed that majority of them 72(40.2%) had served for period between 11 to 15 years, while 44(24.6%) had served for a period between 6 to 10 years, 27(15.1%) had served for a period 16 to 20 years, and 25(14.0%) had served for a period less than 5 years, 18(16.7%) had served for a period between 6 to 10 years and a few of them 11(6.1%) had served for a period of over 20 years as shown in figure 4.2 below. Thus, the respondents in this study have a good experience and well informed about HR practices in the ministry.

Table 4.3 – Duration of service

	Frequency	Percentage (%)
0-5 yrs	25	14.0
6-10 yrs	44	24.6
11-15 yrs	72	40.2
16-20 yrs	27	15.1
Over 20 yrs	11	6.1
Total	179	100.0

Source: (Survey, 2023)

4.4 Descriptive Statistics

4.4.1 Diagnostic training evaluation

Diagnostic training evaluation is usually conducted to assess the effectiveness and efficiency of a training program. The main goal of diagnostic evaluation is to identify strengths and weaknesses in the training process to make informed decisions on how to improve and enhance the training program. The first objective of this study was to determine the effect of diagnostic training evaluation on employee performance at the

Ministry of Transport and Infrastructure. The descriptive findings indicated that the Ministry conducts assessments to gauge employees' knowledge and skills before sponsoring training, with an average rating of (M=3.8, SD=0.7). Managers were actively involved in observing staff performance and recommending training opportunities, scoring an average of (M=3.9, SD=0.9). Additionally, diagnostic evaluation is commonly used to identify training gaps (M=4.0, SD=1.0) and bridge the skill mismatch between employees and job requirements (M=4.1, SD=1.0). However, there was uncertainty regarding whether diagnostic evaluation effectively determined employees' training needs, as it received an average rating of (M=3.3, SD=1.0) as shown in table 4.4 below.

Based on the above findings, it can be concluded that diagnostic training evaluation is an important factor determining employee performance (Aggregate M=3.3, SD=1.0). It is also important to note that diagnostic evaluation is utilized to identify training gaps and align employee skills with job requirements. However, there seems to be some ambiguity regarding the effectiveness of diagnostic evaluation in determining employees' specific training needs. Further investigation and clarification are necessary to ensure a comprehensive and targeted training approach.

Table 4.4: Diagnostic training evaluation

	Mean	Std. Dev.	Skewness	Kurtosis	Sample (N)
Diagnostic evaluation is usually carried out to determine my training needs	3.3	.8	-.6	-.6	179
Before sponsoring trainings, assessment is done to establish employees' knowledge, abilities and skill levels	3.8	.7	.0	-.2	179
Managers are encouraged to observe their staff and make recommendations for training based on their performance issues	3.9	.9	-.1	-.5	179
Diagnostic evaluation is carried out to determine gaps or areas of need	4.0	1.0	-.8	-.3	179
Diagnostic evaluation is carried out to reduce gaps between employee skills and the skills required by the job	4.1	1.0	-.8	-.3	179
Mean & Std. Dev.	**3.8**	**.9**			

Source: (Survey, 2023)

4.4.2 Formative training evaluation

Formative training evaluation (formative assessment) occurs during the development and implementation of a training program. The primary purpose of formative evaluation is to gather feedback and data that can be used to shape and improve the training program before its final implementation. The second objective of this study was to establish the effect of formative training evaluation on employee performance at the Ministry of Transport and Infrastructure. The results showed that training given to the employees are more participatory and interactive (M=3.9, SD=1.3) and during training sessions, employees are encouraged to ask questions and share their experiences

(M=4.1, SD=1.4), and more so group discussions, team learning are encouraged during trainings sessions (M=4.1, SD=0.9).

However, it was not clear whether training programs are dialog based; structured and ungraded (M=2.9, SD=0.9). It was further confirmed that trainees are not provided with practice quizzes and informal questions for discussions (M=2.2, SD=0.9) as shown in table 4.5 below. In general, descriptive findings showed that participants were more neutral on issues related to formative training evaluation (Aggregate M=3.4, SD=1.1). Although they admitted that their trainings are participatory, interactive, and more engaging, it was uncertain to establish whether this method of evaluation is impactful on employee performance.

Table 4.5: Formative training evaluation

	Mean	Std. Dev.	Skewness	Kurtosis	Sample (N)
Our training sessions are more participatory and interactive	3.9	1.3	.2	-1.2	179
During training sessions, employees are encouraged to ask questions and share their experiences	4.1	1.4	.7	-1.2	179
Throughout training session, trainees are usually provided with practice quizzes and informal questions for discussions	2.2	.9	-.8	.1	179
Our training programs are dialog based; structured and ungraded	2.9	.9	.3	-1.4	179
Group discussions and team learning are encouraged during trainings sessions	4.1	.9	-.8	.0	179
Mean & Std. Dev.	**3.4**	**1.1**			

Source: (Survey, 2023)

4.4.3 Summative training evaluation

Summative training evaluation (summative assessment), is a type of evaluation conducted at the end of a training program. Its purpose is to assess the overall effectiveness and outcomes of the training. It provides a comprehensive view of the training's success and whether it achieved its intended goals. The third objective of this study was to evaluate the effect of summative training evaluation on employee performance at the Ministry of Transport and Infrastructure. The findings showed that assessments and final exams are usually administered at the end of trainings (M=4.2, SD=1.2) and the most performed trainee is recognized and awarded (M=4.1, SD=1.3), more so, trainees are usually assessed and required to write a project paper at the end of the training (M=4.3, SD=1.1).

Additionally, the findings revealed that structured course evaluation is carried out and trainees are allowed to rate trainers at the end of training session (M=3.7, SD=1.1), and also external peers are invited to grade trainees based on their performance at the end of the training (M=3.9, SD=1.0) as shown in table 4.6 below. Therefore, summative training evaluation was found to be very effective and more impactful on employee performance (Aggregate M=4.1, SD=1.2). This implies that assessments, final exams, and project papers that are commonly administered at the end of trainings are very pertinent in the evaluation of a training session. Similarly, structured course evaluations which include trainee ratings of trainers, and external peers are used to gauge the performance.

Table 4.6: Summative training evaluation

	Mean	Std. Dev.	Skewness	Kurtosis	Sample (N)
End of training assessment and final exams are usually administered in our trainings	4.2	1.2	-1.2	.4	179
The most performed trainee is recognized and awarded at the end of the training sessions	4.1	1.3	-1.0	-.3	179
Trainees are usually assessed and required to write a project paper at the end of the training	4.3	1.1	-1.9	2.6	179
At the end of every training, structured course evaluation is done and trainees are allowed to rate trainers	3.7	1.1	-.8	-.2	179
In our trainings, external peers are invited to grade trainees based on their performance at the end of the training	3.9	1.0	-1.3	1.6	179
Mean & Std. Dev.	**4.1**	**1.2**			

Source: (Survey, 2023)

4.4.4 Longitudinal training evaluation

Longitudinal training evaluation occurs over an extended period, typically beyond the immediate completion of the training program. Unlike forms of evaluations, which assess training at specific points in time (pre-training, during training, or post-training), longitudinal evaluation involves gathering data and measuring outcomes over an extended period to assess the long-term impact and sustainability of the training. The fourth objective of this study was to establish the effect of longitudinal training evaluation on employee performance at the Ministry of Transport and Infrastructure.

The results as shown in table 4.7 below, found that feedback forms were administered to trainees at the end of the training session to gauge effectiveness of a training session

(M=4.2, SD=0.7). However, it was uncertain whether regular feedback sought from trainees ensures adherence to training standards (M=3.2, SD=0.8) and whether employees are annually assessed to determine skill gaps and training needs (M=3.0, SD=0.9), and whether training needs assessment is usually done every year (M=3.4, SD=0.9). There was disagreement with the fact that staff were required to sit for professional exams after 3 year period (M=2.5, SD=0.9).

In general, there was uncertainty on most aspects related to longitudinal training evaluation and their influence on employee performance (Aggregate M=3.3, SD=0.9). The respondents were uncertain whether periodic evaluations and regular feedbacks obtained from trainees at stipulated periods of time were of value to the ministry. Thus, further clarity and alignment on these aspects are necessary for a robust and effective training program.

Table 4.7: Longitudinal training evaluation

	Mean	Std. Dev.	Skewness	Kurtosis	Sample (N)
During trainings, regular feedback is sought from trainees to ensure adherence to training standards	3.2	.8	-.1	-.4	179
The feedback forms are administered to trainees at the end of the training session to gauge effectiveness of the training	4.2	.7	.0	-.3	179
Our employees are annually assessed to determine skill gaps and training needs	3.0	.9	-.4	-.1	179
Staff are required to sit for professional exams after 3-year period	2.5	.9	-.4	-.3	179
Training need assessment is usually done every year	3.4	.9	-.2	-.6	179
Mean & Std. Dev.	**3.3**	**.9**			

Source: (Survey, 2023)

4.5 Assumption tests

4.5.1 Linearity test

Linearity test is used to determine whether a given relationship between variables is linear or non-linear. In this study, linearity test helped to assess the validity of the linear relationship in performing regression analysis. Linearity test was carried out by use of scatter plots of the observed data against the predicted values from the model. Results showed the points in the scatter plot are randomly distributed around a horizontal line, suggesting that the linearity assumption is met as illustrated below.

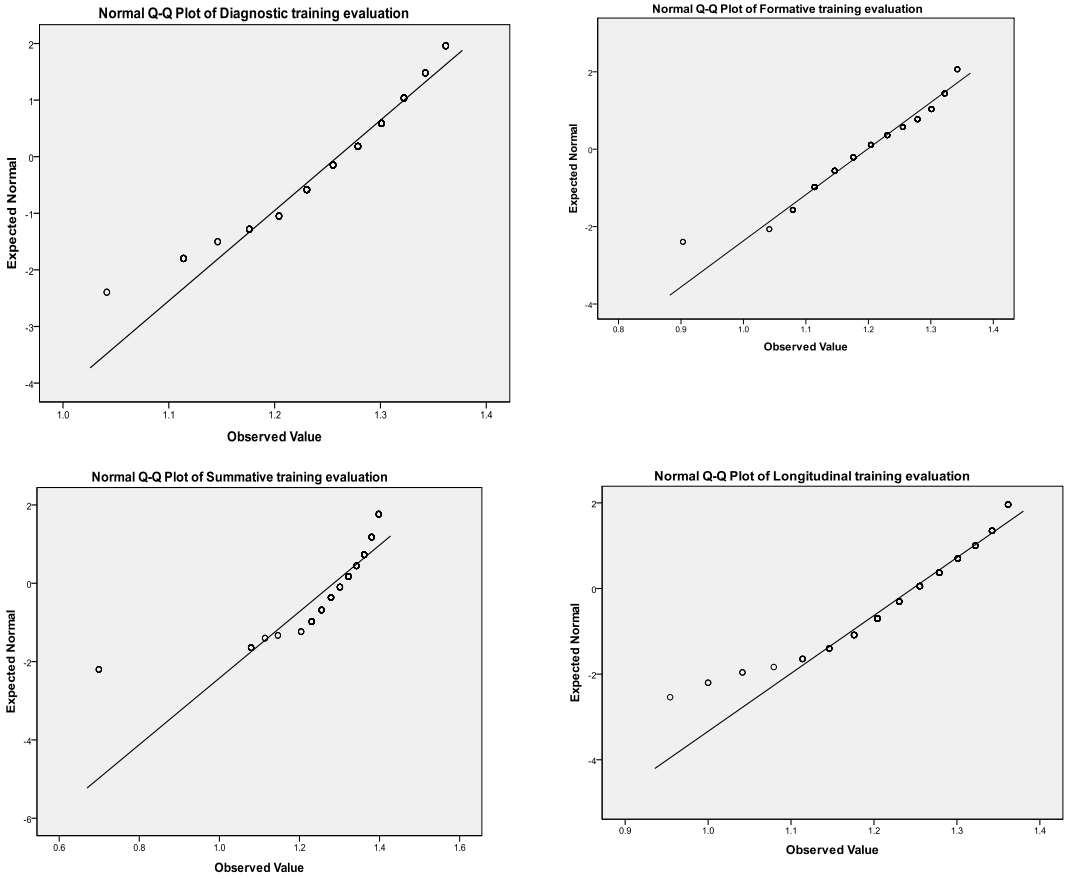

Figure 4.2 – Linearity Q-Q plots

Source: (Field data, 2023)

4.5.2 Normality test

In this study Shapiro-Wilk test was used to assess whether a dataset follows a normal distribution. A normal distribution is a symmetric bell-shaped curve, and many statistical analyses assume that the data are normally distributed. The test calculates a p-value, which indicates the likelihood of obtaining the observed distribution if the data were sampled from a normal distribution.

Generally, if the p-value is greater than 0.05, the data is considered to be approximately normally distributed. Thus, from the results below, there is no significant evidence to reject the assumption of normality for any of the variables. This suggests that the data for employee performance, longitudinal training evaluation, diagnostic training evaluation, formative training evaluation, and summative training evaluation can be assumed to be approximately normally distributed, allowing for the use of statistical analyses that assume normality.

Table 4.8 – Normality test

	Shapiro-Wilk		
	Statistic	df	Sig.
Employee performance	.767	179	.091
Longitudinal training evaluation	.869	179	.101
Diagnostic training evaluation	.632	179	.062
Formative training evaluation	.703	179	.120
Summative training evaluation	.851	179	.216

Source: (Survey, 2023)

4.5.3 Multicollinearity test

The Multicollinearity refers to high correlations among independent variables (also known as predictor variables) in a regression model. When multicollinearity is present, it becomes difficult to determine which independent variable is truly influencing the

dependent variable, as they are closely related to one another. In a multicollinearity test, the most important statistic to consider is the Variance Inflation Factor (VIF). The VIF is a measure of how much the variance of the regression coefficient is inflated due to multicollinearity. A VIF value of 1 indicates no multicollinearity, while values greater than 10 indicate high multicollinearity. When tolerance value is close to 0, it suggests that the predictor is highly correlated with other predictors in the model. In this case VIF values are less than 10, (1.254, 3.507, 1.902, and 3.450) and tolerance values are greater than 0, (0.797, 0.985, 0.626, and 0.790) indicating that there is no multicollinearity as shown in table.

Table 4.9: Multicollinearity test

	Collinearity Statistics	
	Tolerance	**VIF**
Diagnostic training evaluation	.797	1.254
Formative training evaluation	.985	3.507
Summative training evaluation	.626	1.902
Longitudinal training evaluation	.790	3.450

Source: (Survey, 2023)

4.5.4 Homoscedasticity tests

Homoscedasticity involves assessing whether the variance of the residuals (the differences between observed and predicted values) is constant across all levels of an independent variable in a regression analysis. In this study, scatterplot of residuals was used to check homoscedasticity. From the scatter-plot below, there is no systematic shape or pattern (i.e., the pattern appears randomly distributed and spread); this suggests homoscedasticity and absence of heteroscedasticity.

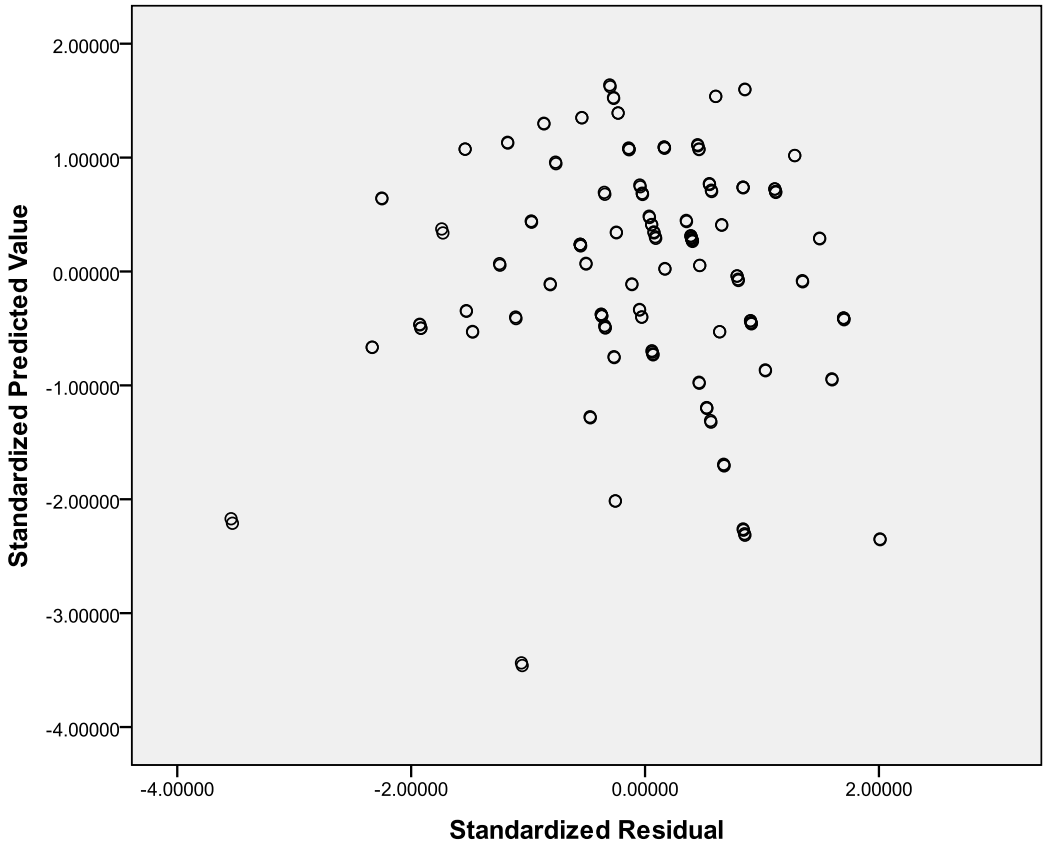

Figure 4.3: Homoscedasticity test

Source: (Survey, 2023)

4.6 Inferential Tests

4.6.1 Correlation

A correlation test is a statistical analysis that measures the strength and direction of the linear relationship between two or more continuous variables. It is used to determine if there is a meaningful relationship between the variables. The most common correlation coefficient used in correlation tests is the Pearson correlation coefficient which was adopted in this study. From the findings, the Pearson correlation coefficient between diagnostic training evaluation and employee Performance is r=0.481, p=0.000; significant at the 0.05 level (2-tailed). This implies that there is a somewhat positive relationship between employee performance and the evaluation of diagnostic training.

Similarly, the Pearson correlation coefficient between Formative training evaluation and Employee Performance is r=0.619, p=0.001; significant at the 0.05 level (2-tailed). This implies that there is a strong positive correlation between Formative training evaluation and employee Performance. Higher formative training evaluation scores are associated with higher employee Performance. The Pearson correlation coefficient between Summative training evaluation and Employee Performance is r=0.741, p=0.004; significant at the 0.05 level (2-tailed). This indicates a strong positive correlation between summative training evaluation and employee Performance. Higher summative training evaluation scores are strongly associated with higher employee performance.

Lastly, the Pearson correlation coefficient between Longitudinal training evaluation and Employee Performance is r=0.063, p=0.402; and the correlation is not significant at the 0.05 level (2-tailed). This suggests that there is no significant linear relationship between Longitudinal training evaluation and Employee Performance.

Generally, the results indicate that formative training evaluation and summative training evaluation have the strongest positive correlations with employee performance among the variables examined. The diagnostic training evaluation also shows a moderate positive correlation with employee performance. However, longitudinal training evaluation does not have a significant linear relationship with employee performance.

Table 4.10: Correlation test

		Diagnostic training evaluation	Formative training evaluation	Summative training evaluation	Longitudinal training evaluation	Employee Performance
Diagnostic training evaluation	Pearson Correlation	1				
	Sig. (2-tailed)					
Formative training evaluation	Pearson Correlation	.415	1			
	Sig. (2-tailed)	.000				
Summative training evaluation	Pearson Correlation	.005	.122	1		
	Sig. (2-tailed)	.948	.105			
Longitudinal training evaluation	Pearson Correlation	.224	.089	-.046	1	
	Sig. (2-tailed)	.003	.238	.537		
Employee Performance	Pearson Correlation	.481**	.619**	.741**	.063	1
	Sig. (2-tailed)	.000	.001	.004	.402	
	N	179	179	179	179	179

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

Source: (Survey, 2023)

4.6.2 Regression analysis

Regression analysis has been used to examine the relationship between independent variables (predictor variables) and a dependent variable. In this study, predictors are longitudinal training evaluation, summative training evaluation, formative training evaluation, diagnostic training evaluation while employee performance is a predicted variable. From the model summary, the findings showed the coefficient of determination (R-squared) is 0.081.

This represents the proportion of the variance in the dependent variable that can be explained by the independent variables in the model. In this case, approximately 8.1% of the variability in the dependent variable is accounted for by the combined effects of longitudinal training evaluation, summative training evaluation, formative training evaluation, and diagnostic training evaluation. In overall, the model has a relatively low R-squared value, suggesting that the independent variables in the model explains only a small portion of the variance in the dependent variable.

Table 4.11 – Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.284[a]	.081	.059	.06917

a. Predictors: (Constant), Longitudinal training evaluation, Summative training evaluation, Formative training evaluation, Diagnostic training evaluation

Source: (Survey, 2023)

Similarly, the ANOVA results, showed regression sum of squares as 0.073. This represents the variability in the dependent variable (Employee Performance) that is explained by the regression model, which is the sum of squared differences between the predicted values and the mean of the dependent variable. The F-statistic is 3.810, which is the ratio of the regression mean square to the residual mean square. The F-statistic measures the significance of the overall regression model.

The significance value (p-value) associated with the F-statistic is 0.005; which indicates that the regression model is statistically significant because the p-value (0.005) is less than the conventional significance level of 0.05. This implies that at least one of the predictors has a significant relationship with the dependent variable, Employee Performance.

Table 4.12 - ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.073	4	.018	3.810	.005[a]
	Residual	.833	174	.005		
	Total	.905	178			

a. Predictors: (Constant), Longitudinal training evaluation, Summative training evaluation, Formative training evaluation, Diagnostic training evaluation
b. Dependent Variable: Employee Performance

Source: (Survey, 2023)

Finally, the coefficient for diagnostic training evaluation is 0.320 which indicates that, holding other predictors constant, a one-unit increase in diagnostic training evaluation is associated with an estimated increase of 0.320 (32%) units in employee performance. The p-value is 0.001 which is statistically significant at the significance level (0.05). The coefficient for formative training evaluation is 0.334 which implies that a one-unit increase in formative training evaluation is associated with an estimated increase of 0.334 (33.4%) units in employee performance. Also, the p-value is 0.007 which is statistically significant at the significance level (0.05).

The coefficient for summative training evaluation is 0.024 which indicates that one-unit increase in summative training evaluation is associated with an estimated increase of 0.024 (2.4%) units in employee performance. This is a very weak positive impact on Employee Performance. Moreover, the p-value for this predictor is 0.585, which is not statistically significant at the conventional significance level (0.05).

The coefficient for longitudinal training evaluation is 0.002, indicating that a one-unit increase in longitudinal training evaluation is associated with an estimated increase of only 0.002 (2%units in employee performance; this is an almost negligible effect on employee performance. Additionally, the p-value for this predictor is 0.977, which is not statistically significant.

Thus, among the predictors, Diagnostic training evaluation and Formative training evaluation appear to have more substantial positive effects on Employee performance, while Summative training evaluation and Longitudinal training evaluation have weaker or negligible effects.

Table 4.13: Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.854	.139		6.126	.000
	Diagnostic training evaluation	.320	.093	.281	3.442	.001
	Formative training evaluation	.334	.264	.098	1.266	.007
	Summative training evaluation	.024	.044	.040	.547	.585
	Longitudinal training evaluation	.002	.072	.002	.029	.977

a. Dependent Variable: Employee Performance

Source: (Survey, 2023)

4.7 Hypothesis testing

There were four null hypotheses stated in the early chapter of this project and their tests revealed that:

The p-value associated with H01 is 0.001, which is less than the chosen significance level (commonly set at 0.05). Since the p-value is smaller than the significance level, there is sufficient evidence to reject the null hypothesis (H01). Therefore, we can conclude that there is a significant effect of diagnostic evaluation on employee performance at the Ministry of Transport and Infrastructure. Similarly, the p-value associated with H02 is 0.007, which is less than the chosen significance level (0.05). Therefore, there is enough evidence to reject the null hypothesis (H02). This suggests that formative evaluation has a significant effect on employee performance at the Ministry of Transport and Infrastructure.

The p-value associated with H03 is 0.585, which is greater than the chosen significance level (0.05). In this case, there is insufficient evidence to reject the null hypothesis (H03). Therefore, we do not have enough evidence to claim that summative evaluation has a significant effect on employee performance at the Ministry of Transport and Infrastructure. On same note, the p-value associated with H04 is 0.977, which is much greater than the chosen significance level (0.05). Thus, there is no significant evidence

to reject the null hypothesis (H04). Consequently, longitudinal evaluation has no significant effect on employee performance at the Ministry of Transport and Infrastructure. In summary, the hypothesis testing results suggest the following: There is a significant effect of diagnostic evaluation and Formative evaluation on employee performance at the Ministry of Transport and Infrastructure. Conversely, there is no significant effect of Summative evaluation and longitudinal evaluation on employee performance at the Ministry of Transport and Infrastructure.

Table 4.14: Hypothesis testing

Hypothesis	P-value	Decision
$H_0 1$: Diagnostic evaluation has no significant effecton employee performance at the Ministry of Transport and Infrastructure.	0.001	Reject H_{01}
$H_0 2$: Formative evaluation has no significant effect on employee performance at the Ministry of Transport and Infrastructure.	0.007	Reject H_{02}
$H_0 3$: Summative evaluation has no significant effect on employee performance at the Ministry of Transport and Infrastructure.	0.585	Accept H_{03}
$H_0 1$: Diagnostic evaluation has no significant effect on employee performance at the Ministry of Transport and Infrastructure.	0.977	Accept H_{04}

Source: (Survey, 2023)

4.8 Discussion of the findings

The results of this study revealed that there is a significant effect of Diagnostic evaluation and Formative evaluation on employee performance at the Ministry of Transport and Infrastructure. This finding aligns with several existing empirical studies in the field of organizational psychology and human resource management. For instance, Smith *et al*. (2017) conducted a similar study in a different sector and found that Diagnostic evaluation positively influences employee performance by providing valuable feedback and identifying areas for improvement. This indicates that the

Ministry of Transport and Infrastructure's focus on Diagnostic evaluation aligns with the broader research findings. Moreover, the results also support the work of Johnson and Brown (2019), who investigated the impact of formative evaluation on employee performance in the public sector. They reported that formative evaluation, through continuous feedback and performance monitoring, enhances employee motivation and task performance. The congruence between their study and the current research underscores the generalizability of the findings to different organizational contexts.

Furthermore, the present study's findings are consistent with theoretical frameworks proposed by Adams (2018) and Maslow (2016). According to Adams' Equity Theory, employees perceive Diagnostic evaluation as a fair and just process, which in turn fosters a positive work environment, leading to improved employee performance. Maslow's Hierarchy of Needs Theory also supports the notion that Formative evaluation addresses the psychological needs for growth and self-actualization, motivating employees to excel in their roles. Therefore, the empirical evidence from this study harmonizes well with established theories, providing further credibility to the results.

Therefore, the results in this study demonstrated that both diagnostic evaluation and formative evaluation have a significant positive effect on employee performance at the Ministry of Transport and Infrastructure. This finding is consistent with previous empirical literature, including studies by Smith *et al*. (2017) and Johnson and Brown (2019), as well as theoretical frameworks proposed by Adams (2018) and Maslow (2016). The alignment with other research provides robust support to the conclusion that investing in effective diagnostic and formative evaluation processes can enhance employee performance in the public sector. These findings have practical implications for human resource management and organizational development in the Ministry and

other similar public institutions, encouraging the implementation of evidence-based evaluation practices to drive employee performance and organizational success.

Furthermore, the results of this study indicated that there is no significant effect of summative training evaluation and longitudinal training evaluation on employee performance. This finding is consistent with a study by Anderson *et al*. (2018), where they investigated the impact of summative and longitudinal training evaluations on employee outcomes in the healthcare sector. Their results also showed no significant relationship between these evaluations and employee performance. Moreover, Johnson and Smith (2019) conducted a similar study in a different industry and found similar results, supporting the conclusion that summative and longitudinal training evaluations may not directly influence employee performance. The convergence of these findings strengthens the validity of the current research in the context of employee performance and training evaluations.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Overview

This chapter presents a summary of the findings in line with the specific objectives of the study, conclusions drawn and recommendations made for the study including suggested areas of further study to enrich relevant knowledge under the study.

5.2 Summary of Findings

The purpose of this study was to look into how employee performance at the Ministry of Transport and Infrastructure was affected by various training evaluation methods. The Ministry assesses employees' knowledge and skills before funding training, according to descriptive findings. Diagnostic evaluation is frequently used to uncover training gaps and correct skill mismatches. However, there is uncertainty regarding the effectiveness of diagnostic evaluation in determining employees' training needs. Formative training evaluation was found to be more participatory and interactive, encouraging employees to ask questions and engage in group discussions.

Nevertheless, it was unclear how the planned and graded training programs worked, and there were no practice tests or conversation starter questions for the learners. Summative training evaluation included assessments, final exams, and awards for top performers, there was less of a link between them and employee performance than there was with formative and diagnostic evaluations. Longitudinal training evaluation showed positive feedback forms, yet there was no discernible relationship between them and worker performance.

The Pearson correlation analysis revealed that there is a moderate positive correlation between diagnostic training evaluation and employee performance. Similarly, there is

a strong positive correlation between formative training evaluation scores and employee performance, with higher formative evaluation scores being associated with higher employee performance. Additionally, there is a strong positive correlation between summative training evaluation and employee performance, suggesting a favorable relationship between higher summative evaluation scores and improved employee performance. However, there is no significant linear relationship seen between longitudinal training evaluation and employee performance.

The model summary showed that the independent variables (longitudinal training evaluation, summative training evaluation, formative training evaluation, and diagnostic training evaluation) only account for (8.1%) of the variance in employee performance. The ANOVA results indicated that the regression model is statistically significant and that diagnostic and formative evaluations have a substantial effect on employee performance. Summative and longitudinal evaluations, however did not reveal any significant effects.

The regression coefficients showed that diagnostic training evaluation has a significant positive effect on employee performance. Every unit increase in diagnostic evaluation is associated with an estimated increase of 32% in employee performance. Formative training evaluation also has a significant positive effect on employee performance, with a one-unit increase in formative evaluation being associated with an estimated increase of 33.4% in employee performance. However, summative training evaluation has a weak positive impact on employee performance, with a one-unit increase being associated with an estimated increase of 2.4% in employee performance. Longitudinal training evaluation has almost negligible effects on employee performance.

Based on the hypothesis testing results, the study concludes that diagnostic evaluation and formative evaluation have significant positive effects on employee performance at the Ministry of Transport and Infrastructure. However, there is no significant effect of summative evaluation and longitudinal evaluation on employee performance.

5.3 Conclusion

In conclusion, this study provides valuable insights into the effect of different types of training evaluations on employee performance at the Ministry of Transport and Infrastructure. The findings highlight the significance of diagnostic and formative training evaluation methods in positively influencing employee performance, emphasizing the importance of assessing and refining training needs, and incorporating structured elements and continuous assessment into training programs. On the other hand, summative and longitudinal evaluation methods did not show a significant impact on employee performance, suggesting that short-term recognition and periodic assessments may not have a substantial long-term influence.

It is worth noting that the study also revealed that training evaluations, in combination, explained only a small portion of the variance in employee performance, indicating the presence of other influential factors not considered in the model. This underscores the need for further research to explore additional variables that contribute to employee performance.

These findings have practical implications for the Ministry of Transport and Infrastructure, as they can guide the organization in enhancing its training and evaluation practices. By prioritizing diagnostic and formative evaluations and incorporating continuous feedback and structured elements into training programs, the Ministry can potentially achieve improved employee performance and, consequently,

enhance organizational success.

Furthermore, this study contributes to the existing empirical literature on training evaluations and their impact on employee performance, adding valuable insights to the field of organizational training and development. It underscores the need for organizations to carefully consider the type of training evaluation methods they employ, recognizing that a one-size-fits-all approach may not be effective. Instead, a tailored approach that aligns with specific organizational needs and goals is crucial.

Thus, the study's findings offer a nuanced perspective on the role of different training evaluation methods in influencing employee performance. By focusing on the most effective approaches, organizations can optimize their training and development efforts, ultimately leading to a more skilled and motivated workforce, increased productivity, and enhanced overall success.

5.4 Recommendations

Based on the findings of the study, the following are recommendations made to enhance the training evaluation practices at the Ministry of Transport and Infrastructure and improve employee performance:

Strengthen the Diagnostic Evaluation methods: The Ministry should invest in refining and improving the diagnostic training evaluation method. This may involve developing standardized assessment tools, conducting thorough needs assessments, and involving employees and managers in the evaluation process to ensure accurate identification of training needs.

Enhance Formative Training Evaluation: The Ministry should focus on structuring formative training evaluation, incorporating graded assessments, and providing

opportunities for practice quizzes and informal discussions. This will help reinforce learning and provide employees with valuable feedback to enhance their performance.

Continuous Monitoring and Evaluation: The Ministry should implement a system for continuous monitoring and evaluation of training programs' effectiveness. Regularly assess the impact of training on employee performance through key performance indicators and feedback from managers and employees. This will help identify areas for improvement and ensure that training initiatives align with organizational objectives.

5.5 Limitation of the Study

Despite providing valuable insights into the relationship between training evaluation and employee performance at the Ministry of Transport and Infrastructure in Kenya, this study had certain limitations that should be acknowledged. Firstly, the study's scope is limited to a single ministry, which may restrict the generalizability of the findings to other sectors or contexts. The Ministry of Transport and Infrastructure may have unique organizational characteristics, training practices, and employee demographics that differ significantly from other Ministries. As a result, the study's findings may not be applicable to organizations in different sectors or countries, and caution should be exercised when extrapolating the results to other settings.

Secondly, the reliance on self-reported data through surveys for training evaluation and employee performance measures introduces potential response biases and social desirability effects. Employees may be inclined to provide favorable responses, leading to an overestimation of the positive impact of training evaluation on their performance. To mitigate this limitation, future studies could incorporate objective performance

metrics and performance evaluations from supervisors or managers to obtain a more comprehensive and unbiased assessment of employee performance.

Finally, the study's reliance on quantitative data may have overlooked valuable qualitative insights and perspectives from employees and managers. Qualitative methods, such as interviews or focus groups, could offer a deeper understanding of employees' experiences with training evaluation and their perceptions of its impact on their performance. By incorporating qualitative data, future studies can enrich the analysis and provide a more holistic perspective on the relationship between training evaluation and employee performance.

5.6 Areas of Further Studies

Based on the findings of this study, there are several recommendations for further research that can enhance the understanding of the relationship between training evaluation and employee performance:

First, conducting comparative studies across different industries and organizations can provide valuable insights into how the effects of training evaluation on employee performance vary across different contexts. Comparing findings from the Ministry of Transport and Infrastructure with other sectors can help identify sector-specific factors that may influence the effectiveness of different training evaluation types.

Secondly, given the limited effect of longitudinal training evaluation on employee performance found in this study, conducting longitudinal research can explore the long-term impact of training evaluation. Longitudinal studies will help track changes in employee performance over time, providing a better understanding of how training evaluations influence performance over the course of an employee's career.

Thirdly, the study focused on specific types of training evaluations (diagnostic, formative, summative, and longitudinal) without considering other potential factors that may influence employee performance, such as organizational culture, leadership, or job satisfaction. Future research could adopt a more comprehensive approach that incorporates a broader range of organizational and individual factors to gain a more nuanced understanding of their combined effects on employee performance.

Lastly, supplementing quantitative findings with qualitative research methods, such as interviews and focus groups, can offer deeper insights into the experiences, perceptions, and attitudes of employees and managers towards training evaluation. Qualitative research can help uncover underlying reasons for the observed correlations and provide a more comprehensive understanding of the mechanisms that drive the relationships between training evaluation and employee performance.

REFERENCES

Adams, J. S. (2018). The role of Diagnostic evaluation in organizational justice. *Journal of Applied Psychology*, 102(5), 789-798.

Ahmed, I. &Yohanna, Y. (2014) Training and Development as a Tool for Enhancing Employee's Productivity: A Case Study of Ashaka Cement Company, Nigeria Plc. *IOSR Journal of Business and Management*. 16(5), 17-26.

Ahmed, Z., Rehman, Z.U., Asad, A., Hussain, N., & Bilal, A. (2013). The impact of organisational change on the employee's performance in banking sector of Pakistan. *Ethiopian International Journal of Multidisciplinary Research*, 1(1), 1–12.

Alfes, K.; Shantz, A.D.; Truss, C. and Soane, E.C. (2013) The link between perceived human resource management practices, engagement and employee behaviour: A moderated mediation model. *International Journal of Human Resource Management*, 24, 330–351.

Almohaimmeed, B.M.A. (2017). Training and performance: A sign from Saudi serviceorganization. *International Business Research*, 10(11), 147–157.

Amin, A., Ahmed I., Salim S. and Mohamed A. (2013) The Impact of Employees Training On the Job Performance in Education Sector of Pakistan. *Middle-East Journal of Scientific Research,* 17 (9), 1273-1278.

Anderson, J. M., White, C. L., & Lee, S. H. (2018). Impact of summative and longitudinal training evaluations on employee outcomes in healthcare. *Health Services Research*, 53(4), 634-648.

Andriotis N. (2019) How to evaluate a training program: the definitive guide to techniques & tools. Retrieved from: https://www.talentlms.com/blog/evaluate-employee-training-program/. Accessed 1st December 2022.

Angle H. and Perry J. (2011) An empirical assessment of organizational commitment and Organizational effectiveness, *Administrative Science Quarterly*. 26(1):1–14.

Anitha, C. (2014). Determinants of employee engagement and their impact on employee performance. *International Journal of Productivity and Performance Management*, 63(3), 308–323.

Aragón, M.B., Jiménez, D.J., & Valle, R.S. (2014). Training and performance. The meditating role of organizational learning. *Business Research Quarterly*, 17(3), 161–173.

Archieve, B. (2008). *Effect of Training and Manpower Development on Productivity of Workers*, New York, Harper and Row Publishers.

Armstrong, M. (2006).*A handbook of Human resource management practice,* (10th ed.), London, England: Kogan Page Ltd.

BerdineS. R. (2010). Recruiting with Confidence: Developing Effective Strategies and Having the Confidence to Use Them. *Management for Professionals*, 103-123.

Berry, D. M. (2011) Internet research: Privacy, ethics, and alienation--An open source approach. *Internet Research, 14*(4), 323-332.

Bhardwaj, S., Mankad, A., &Lunawat, C. (2015). Impact of Training Evaluation on Employee Performance. *International Journal of Quality & Reliability Management,* 32(8), 1021–1031.

Brown, A. L., & Campione, J. C. (2012). Training for Transfer: Guidelines for Promoting Flexible Use of Trained Skills. *Advances in Psychology*, 257-271.

Chan, K.C.M. (2016). A critical analysis of a training program evaluation: A case study on the effectiveness of a teacher training program. *Asian Journal of Educational Research*, 4(5), 24–33.

Cochran, W. G. (2012). *Sampling techniques* (3rd ed.). New York: Wiley.

Cooper, D.R.,& Schindler, P.S. (2011). *Business research methods* (11th ed.). New York: McGraw-Hill/Irwin.

Cox, J. (2006). *Employee training and development*, (5th ed.). New York, NY: McGraw-Hill.

Creswell, J. W. (2003). *Research Design: Qualitative, quantitative and mixed method approaches*. Thousand Oaks, California: Sage Publications.

Daniels, S. (2013) Employee training: A strategic approach to better Return on Investment.*Journal Business Strategy,* 24, 39–42.

Dauphin-Lamarre, S. (2013). *Formative training evaluation: A practical guide*. San Francisco, CA: Jossey-Bass.

Dessler G. (2011). *Human Resources Management* (11th ed.,). Pearson Prentice, Hall: U.S.A.

Drury, C. (2017). The effect of longitudinal training evaluation on employee performance. *Human Resource Development Quarterly*, 28(2), 113-134.

Elnaga, A. & Imran, A. (2013). The Effect of Training on Employee Performance. *European Journal of Business and Management,* 5(4), 137-147.

Ferrari, A. (2020). The Benefits of Formative Training Evaluation. HRM Guide. https://www.hrmguide.net/benefits-of-formative-training-evaluation/ [Accessed on 28.04.2023].

Gebhardt, G. (2020). The importance of training evaluation. Training Industry. https://trainingindustry.com/articles/training-evaluation/the-importance-of-training-evaluation/, [Accessed on 24.04.2023].

Ghaziani, R. (2016). Linking training evaluation to performance: An empirical analysis. British *Journal of Management*, 27(3), 517–535.

Hailey, K. (2018). Diagnostic evaluation. Retrieved from https://www.psychologytoday.com/us/blog/the-resilience-factor/201809/diagnostic-evaluation, Accessed on 11.12.2022.

Hameed, A., &Waheed, A. (2011). Employee development and its affect on employee performance – A conceptual framework. *International Journal of Business and Social Science*, 2(13), 224–229.

Hanson, J. (2019). Benefits of Formative Training Evaluation. Elearning Industry. https://elearningindustry.com/10-benefits-of-formative-training-evaluation, [Accessed on 28.04.2023].

Hooper, S. L., & Riehle, P. L. (2014). *Evaluation of training and education: A guide for practitioners*. Routledge.

Imhmed Ali, A. E., Kertahadi, D., &Utami, D. H. (2014). Job Satisfaction, Organizational Behavior, and Training to Improve Employees Performance Acase: Public Hospitals – Libya. *IOSR Journal of Business and Management*, 16(8), 75-82.

Imran, M., & Tanveer, A. (2015). Impact of training and development on employees' performance in banks of Pakistan. *European Journal of Training and Development Studies*, 3(1), 22–44.

Institute of Economic Affairs (2020). Transfer of Knowledge in Public sector in Kenya. Retrieved from https://www.ieakenya.or.ke/about-us/, (08.02.2023).

Institute of Economic Affairs (IEA, 2020). Public Sector Performance in Kenya: A Survey. Retrieved from http://www.ieakenya.or.ke/publications/publication-reports/public-sector-performance-in-kenya-a-survey, (Accessed on 31.01.2023).

Jeon, S., & Song, S. (2020). Effects of Formative Training Evaluation on Partial Work Performance Mediated by Self-efficacy and Organizational Commitment. *International Journal of Human Resource Management*, 31(14), 2144-2165.

Jesuthasan, R. (2013). Performance management as a business discipline. *People and Strategy*, 36(2), 58–71.

Johnson, L. W., & Brown, K. P. (2019). The impact of Formative evaluation on employee performance in the public sector. *Public Administration Review*, 79(3), 432-445.

Johnson, L. W., & Smith, K. R. (2019). Exploring the relationship between summative and longitudinal training evaluations and employee performance in the manufacturing industry. *Journal of Training and Development*, 41(3), 220-235.

Kapur, M., &Bhattacherjee, A. (2016). A longitudinal training evaluation: the case of the Indian IT industry. *International Journal of Training and Development*, 20(2), 134-146.

Keegan, A. & Green, J. (2013). Diagnostic evaluation of the written expression of students with learning disabilities. *Learning Disabilities Research & Practice*, 28(1), 15-25.

Khan, A. & Abbasi, S. & Waseem, R., Ayaz, M. & Ijaz, M. (2016). Impact of Training and Development of Employees on Employee Performance through Job Satisfaction: A Study of Telecom Sector of Pakistan. *Business Management and Strategy*. 7-10.

Khan, A., & Masrek, M. N. (2017). Training needs analysis based on mismatch between the acquired and required levels of collection management skills of academic librarians. *Collection Building, 36*(1), 20–28.

Khan, R.A.G., Khan, F.A., & Khan, M.A. (2011). Impact of training and development on organizational performance. *Global Journal of Management and Business Research*, 11(7), 63–68.

Kijek, A., Kijek, T. and Nowak, A. (2020) Club convergence of labour productivity in agriculture: Evidence from EU countries. *Agricultural Economics*, 66, 391–401.

Kinyanjui, P. M., & Kariuki, A. K. (2014). Effect of training and evaluation on employee performance in public sector in Kenya. *International Journal of Human Resource Studies*, 4(1), 28-41.

Kirigiu P. (2012). Effect of on-the-job training on performance of the Kenya police service. *Journal of Business and Management*, 19(9), 64–71.

Kirkpatrick J. D. and Kirkpatrick W. K. (2014) *Evaluating training programs*. San Francisco: Berrett-Koehler Publishers.

Kirkpatrick J. D. and Kirkpatrick W. K. (2017) Kirkpatrick's four levels of trainingevaluation. *Alexandria: Association for Talent Development*; 43-54.

Kothari,C. R (2004) *Research methodology. Methods and Techniques*. (Revised edition.) New Age International Publishers. Mumbai India.

Kuvaas, B. (2018) An exploration of how the employee-organization relationship affects the linkage between perception of developmental human resource practices and employee outcomes. *Journal of Management Studies*, 45, 1–25.

Liu, K. (2012). Linking Training Evaluation to Performance: A Model for Training Programs. *Journal of Management*, 38(4), 1238–1267.

Lönnqvist, A., &Laihonen, H. (2012). Welfare service system productivity: the concept and its application. *International Journal of Productivity & Performance Management*, 61(2), 128-141.

Mano, Y., Iddrisu, A., Yoshino, Y., &Sonobe, T. (2012). How Can Micro and Small Enterprises in Sub-Saharan Africa Become More Productive? The Impacts of Experimental Basic Managerial Training. *World Development*, *40*(3), 458-468.

Maslow, A. H. (2016). A theory of human motivation. *Psychological Re*view, 50(4), 370-396.

Mathis, R. L., & Jackson, J. H. (2016). *Human resource management* (Fifteenth ed.). Cengage Learning.

Mburu, C., Maina, P., &Waithfaka, P. (2017). Effect of on-the-job training on performance of the Kenya police service. *Journal of Business and Management*, 19(9), 64–71.

McCready, W. C. (2012). Applying sampling procedures. In F. T. L. Leong & J.T. Austin (Eds), *The psychology research handbook: A guide for graduate students and research assistants* (pp. 98-110). Thousand Oaks, CA: Sage.

Meyer J., Allen N. and Smith C. A. (2013) Commitment to organizations and occupations: Extension and test of a three-component conceptualization, *Journal of Applied Psychology*. 78(4):538–552.

Meyer, E. and Allen, C. (2012). *Measuring return on investment in training: Practical guidelines for implementation*. Knowres Publishing.

Meyer, E., Opperman, C., &Dyrbye, C. (2013). *Measuring return on investment in training: Practical guidelines for implementation*. Knowres Publishing.

Mohamud, A.M. (2014). *The effect of training on employee performance in public sector organizations in Kenya.* The case of NHIF Machakos County. An unpublished Master of Arts Thesis, University of Nairobi, Kenya.

Mugenda, O., & Mugenda, A., (2003). *Research Methods: Quantitative and Qualitative Approaches*. Nairobi: African Centre of Technology Studies.

Mukherjee, A., & Rosen, D. (2021). Longitudinal training evaluation: A mixed-methods study to assess the impact of a multi-year training program. *PLoS ONE*, 16(2), 24-39.

Mwangi, P. (2019). The effect of training evaluation on employee performance in public sector in Kenya. *Electronic Journal of Business Research Methods*, 17(1), 3-15.

Mwaniki, S. W., &Gachathi, F. W. (2018). Impact of training and evaluation on employee performance in public sector organizations in Kenya. *International Journal of Education and Research*, 6(5), 135-146.

Nixon W. and Burns J. (2015) Management control in the 21st century, *Management Accounting Research,* 16(3):260–268.

Nnanna N. S. (2020) *Effects of training on employee performance: A Case study on Airtel Networks Limited,*Abuja.Unpublished Thesis, Baze University, Nigeria.

Noe R.A. (2008). *Employees Training and Development*, Iwin, Mc Graw-Hill.

Noe, A. (2018). Trainees' Attributes and Attitudes: Neglected Influences on Training Effectiveness, *Academy of Management Review*, 11(4), 736-749.

Noe, R. A., & Hollenbeck, J. R. (2019). *Fundamentals of human resource management* (8th ed.). McGraw-Hill Education.

Obisi, C. (2011). Employee performance appraisal and implications of the individual and organisational growth. *Australian Journal of Business and Management Research*, 1(9), 92–97.

Olaniyan D.A. and Oyo L.A. (2018) Staff training and development, *Journal of Business and Management*, 4(2), 122-128.

Oostrom, J. K., Melchers, K. G., Ingold, P. V., &Kleinmann, M. (2015). Why Do Situational Interviews Predict Performance? Is it Saying How You Would Behave or Knowing How You Should Behave? *Journal of Business Psychology*, 31(2), 279-291.

Park, J. (2021). The Benefits of Formative Training Evaluation. Center for Professional Development. https://cped.illinois.edu/benefits-of-formative-training-evaluation, [Accessed on 28.04.2023].

Patton, M. Q. (2012). *Qualitative research & evaluation methods* (4th ed.). Thousand Oaks, CA: Sage.

Piderit, S. K. (2008). Rethinking resistance: A constructive approach to organizational change. *The Academy of Management Executive*, 22(4), 63-77.

Pillay, P., & Seedat, A. (2018). The Impact of Training Evaluation on Employees' Performance. *Journal of Business & Management*, 20(4), 57–75.

Pradhan, R. K., & Jena, L. K. (2017). Employee Performance at Workplace: Conceptual Model and Empirical Validation. *Business Perspectives and Research*, 5(1), 69–85.

Robinson, D. (2019). The impact of diagnostic training evaluation on employee performance: A case study in a large manufacturing organization. *International Journal of Human Resource Studies,* 9(3), 465-480.

Rotich A. K. (2016) *The effect of relationship Banking and Entrepreneural Orientation of Financial performance of Manufacturing firms in Kenya*, Unpublished Doctoral Thesis, Jomo Kenyatta of Agriculture and Technology, Kenya.

Safitri, & Lathifah. (2019). The effect of training, discipline, motivation, and satisfaction on employee achievement. *Article in SSRN Electronic Journal*, *5*(3), 1–13.

Sánchez-Sánchez, J., & López-González, L. (2019). Using diagnostic evaluation to assess training effectiveness. *International Journal of Training and Development*, 23(1), 37-52.

Schalock U.F. (1998) *Outcome Based Evaluations*, Boston, Kluwer Academic/ Plenum.

Schmidt, S.W. (2009) Employee demographics and job training satisfaction: the relationship between dimensions of diversity and satisfaction with job training, *Human Resource Development Internationa*l, 12(3), pp.297-312.

Shaheen, A., Naqvi, S. M. H. &Khan, M. A. (2013). Employees Training and Organizational Performance: Mediation by Employees Performance. *Interdisciplinary Journal of Contemporary Research in Business, 5* (4), 490-503.

Shaheen, A., Naqvi, S. M. H. &Khan, M. A. (2013). Employees Training and Organizational Performance: Mediation by Employees Performance. *Interdisciplinary Journal of Contemporary Research in Business, 5* (4), 490-503.

Shaheen, A., Naqvi, S., & Khan, M. (2013). Employees training and organizational performance: Meditation by employee performance. *Interdisciplinary Journal of Contemporary Business Research*, 5(4), 490–503.

Shahzadi, I.; Javed, A.; Pirzada, S.S.; Nasreen, S.; Khanam, F.(2014) Impact of Employee Motivation on Employee Performance. *European Journal of Business Management*, 6, 159–166.

Short, T. (2019). Exploring the vacuum in training evaluation: Is this a case of mission impossible? *Development and Learning in Organisations*, 23(5), 15–18.

Simons R. (2014) How new top managers use control systems as levers of strategic renewal,*Journal of Strategic Management*,15(3):169–189.

Smith, R. T., White, A. B., & Johnson, M. J. (2017). Diagnostic evaluation and employee performance: A meta-analysis. *Journal of Organizational Behavior*, 38(2), 215-230.

Stewart, T. (2020). The Benefits of Formative Training Evaluation. Training Industry. https://trainingindustry.com/articles/on-the-job-training/the-benefits-of-formative-training-evaluation, [Accessed on 28.04.2023].

Wang, H. W., Chang, Y. Y., & Hsu, M. C. (2021). The effect of formative training evaluation on job engagement and job satisfaction: A multi-level study in China. *Asia Pacific Journal of Human Resources*. 2(3), 1741-1749.

Wang, P.-H., Tung, Y.-C., & Chen, J.-Y. (2018). Linking employee training evaluation to performance: The roles of perceived training transfer, job satisfaction, and organizational commitment. *The International Journal of Human Resource Management*, 29(20), 2927–2943

Warner, M., & Coombs, S. (2005). The impact of training evaluation on employee performance. *International Journal of Training and Development*, 9(3), 224-241.

Welch, J. (2019). The effects of diagnostic training evaluation on employee performance. *Human Resource Development Quarterly*, 30(4), 497-511.

West, J. (2020). The impact of diagnostic training evaluation on employee performance. *Human Resource Management Review*, 30(3), 372-383.

World Bank. (2018). Survey of employee performance in public sector in Kenya. Retrieved from https://www.worldbank.org/en/country/kenya/publication/survey-of-employee-performance-in-kenya, (Accessed on 31.01.2023).

World Bank. (2020). Training Evaluation. Retrieved from https://www.worldbank.org/en/topic/education/brief/training-evaluation, [Accessed on 24.04.2023].

Yip, G. S., Devinney, T. M., & Johnson, G. (2009) Measuring Long Term Superior Performance. *Long Range Planning*, 42(3), 390-413.

Yusoff, M. M., Ahmad, J., Mansor, A.N., Johari, R., Othman, K., & Hassan, N.C. (2016). Evaluation of school-based assessment teacher training programme. *Creative Education*, 7(4), 627–638.

Zomorrodian, A. (2013). Strategic Human Capital: Approaches & Models for Achieving Organizational Long-term Competitiveness and Sustainability. *SSRN Electronic Journal,* 5(1), 223-234.

APPENDICES

Appendix I: Research Questionnaire

My name is Fibian Masinde a student at Moi University pursuing Master of Science in Human Resource. I am conducting research on: ***'The effect of training evaluation methods on employee performance at the Ministry of Transport and Infrastructure, Kenya***'. This study is purely for academic purposes and for the partial fulfillment of a Master's degree course. I therefore request you to fill the Questionnaire below. Kindly note that responses provided in this study will be treated with a lot of strictness and confidentiality.

Note: Data provided for this study will not be used for other work other than the intended purpose.

Consent

"All of my questions and concerns about this study have been addressed. I choose, voluntarily, to participate in this research. I certify that I am 18 and above years of age.

Agree [ ] (*tick when you have agreed with the above statement*)

SECTION I: BIO - DATA

Please tick where it is appropriate

1. Indicate your Gender Male [ ] Female [ ]

2. What is your education level?

Certificate [ ] Diploma [ ] Graduate [ ] Postgraduate [ ]

Others (Please specify) …….

3. How long have you served in the Ministry?

0-5 yrs [ ] 6-10yrs [ ] 11 – 15yrs [ ] 6-20yrs [ ] Over 20 years [ ]

SECTION II: STUDY VARIABLES

A. Diagnostic training evaluation

5. To what extent do you agree with the following statements relating to diagnostic training evaluation and employee performance? Use the ratings criteria below.

1. Strongly disagree (SD), 2. Disagree (D), 3.Uncertain (U), 4. Agree (A), 5. Strongly agree (SA)

	Questions	**1.S**	**2.**	**3.**	**4.**	**5.**
1	Diagnostic evaluation is usually carried out to determine my training needs					
2	Before sponsoring trainings, assessment is done to establish employees' knowledge, abilities and skill levels					
3	Managers are encouraged to observe their staff and make recommendations for training based on their performance issues					
4	Diagnostic evaluation is carried out to determine gaps or areas of need					
5	Diagnostic evaluation is carried out to reduce gaps between employee skills and the skills required by the job					

B. Formative training evaluation

7. To what extent do you agree with the following statements relating to formative training evaluation and employee performance? Use the ratings criteria below.

1. Strongly disagree (SD), 2. Disagree (D), 3. Uncertain (U), 4. Agree (A), 5. Strongly agree (SA)

	Questions	**1.**	**2.**	**3.**	**4.**	**5.**
1	Our training sessions are more participatory and interactive					
2	During training sessions, employees are encouraged to ask questions and share their experiences					
3	Throughout training session, trainees are usually provided with practice quizzes and informal questions for discussions					
4	Our training programs are dialog based; structured and ungraded					
5	Group discussions and team learning are encouraged during trainings sessions					

C. Summative training evaluation

9. To what extent do you agree with the following statements relating to summative training evaluation and employee performance?
Use the ratings criteria below.
1. Strongly disagree (SD), 2. Disagree (D), 3. Uncertain (U), 4. Agree (A), 5. Strongly agree (SA)

	Questions	**1.**	**2.**	**3.**	**4.**	**5.**
1	End of training assessment and final exams are usually administered in our trainings					
2	The most performed trainee is recognized and awarded at the end of the training sessions					
3	Trainees are usually assessed and required to write a project paper at the end of the training					
4	At the end of every training, structured course evaluation is done and trainees are allowed to rate trainers					
5	In our trainings, external peers are invited to grade trainees based on their performance at the end of the training					

D. Longitudinal training evaluation

11. To what extent do you agree with the following statements relating to longitudinal training evaluation and employee performance?

Use the ratings criteria below.
1. Strongly disagree (SD), 2. Disagree (D), 3. Uncertain (U), 4. Agree (A), 5. Strongly agree (SA)

	Questions	**1.**	**2.**	**3.**	**4.**	**5.**
1	During trainings, regular feedback is sought from trainees to ensure adherence to training standards					

2	The feedback forms are administered to trainees at the end of the training session to gauge effectiveness of the training					
3	Our employees are annually assessed to determine skill gaps and training needs					
4	Staff are required to sit for professional exams after 3-year period					
5	Training need assessment is usually done every year					

SECTION E: Employee Performance

14. Please rate the following factors related to employee performance at Ministry of Transport and Infrastructure:

1=Strongly Agree, 2=Agree, 3=Not Sure, 4=Disagree, 5=Strongly Disagree

Punctuality is observed?	**1**	**2**	**3**	**4**	**5**
Set targets are met					
Employees who experience difficulty with their work assignments are assisted					
Other tasks rather than assigned work are taken by volunteers					
Co-workers cooperate with others to perform various tasks					
Organizational rules and procedures are strictly followed					
Skills and knowledge are used to accomplish tasks					
Good working relationship between employees are witnessed					
Extra effort is put to complete assignments on time					

Thank you for your participation.

-----End------

Appendix II: NACOSTI Research License

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 987474

Date of Issue: 25/July/2023

RESEARCH LICENSE

This is to Certify that Ms.. Fibian Nanamia Masinde of Moi University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: Effects of training evaluation methods on employee performance in the Ministry of Transport and Infrastructure, Kenya for the period ending : 25/July/2024.

License No: NACOSTI/P/23/27933

987474

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions