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FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE

DEPARTMENT OF ENVIRONMENTAL SCIENCE

A STRUCTURAL MODEL ON THE RELATIONSHIP BETWEEN TRAINING, QUALITY, HEALTH & SAFETY AT MITCHELL DRILLING INTERNATIONAL

BY

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DECLARATION

I, Luther Mavhengere, do hereby declare that this dissertation is a result of my own investigation and research, except to the extent indicated in the acknowledgments, bibliography, references, and comments included in the body of the report, and that it has not been submitted in part or in full for any other degree to any other university.

25-05-2025

…… ……..

STUDENT SIGNATURE **DATE**

DEDICATION

This research is dedicated to my wife and my children, who have put in a lot of effort in supporting me during the course of my studies.

May the Lord God continue to richly bless you abundantly!

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I wish to express my profound gratitude and appreciation to all those who have contributed to making this project a success.

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ABSTRACT

This study sought to develop a structural model on the relationship between training, quality, health & safety at Mitchell Drilling International. This study employed an explanatory - case study research design and the positivism as the research philosophy. The quantitative method was used as the research approach. The study used a sample size of 250 respondents. The research instruments for the study were questionnaires. The sampling technique employed was convenience sampling**.** The main research results for the study were that health and safety is positively associated with quality. Thus, the need to provide a safe and healthy work environment enables employees work efficiently and hence a culture of quality of fostered. The results also revealed that training and development of employees to a greater extent enhances job satisfaction. Thus, high engaged employees tend to highly motivated. In addition, the study also revealed that training is positively associated with health and safety. Therefore, maintaining a continuous surveillance of employees' physical well-being, particularly their exposure to hazardous substances, is a vital component of ensuring early detection of potential health issues. The major recommendations were that, the managers mining firms to constantly and continuously train their employees so that their skills remain current. The management of Mitchell Drilling International should make regular equipment maintenance a top priority as this helps to prevent accidents on construction sites. The management is also recommended to embrace Total Productive Maintenance (TPM) and focuses on enhancing equipment reliability, workplace safety, and productivity improvement.

ABBREVIATIONS

CI	confidence interval (CI)
CA	Cronbach's alpha
CR	Composite Reliability
MDI	Mitchell Drilling International
PWT	Psychology of Working Theory
EET	Employee engagement Theory
ERP	Heterotrait-Monotrait Ratio of Correlations
PPE	Personal Protective Equipment
OJT	On-the-job training.
SHE	Safety Health Environment
TPM	Total Productive Maintenance

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CHAPTER I

INTRODUCTION

1.1 Introduction

In order to minimize mishaps and guarantee a secure workplace, training is essential. Employee morale, output, and ultimately job satisfaction are all increased in a safe and healthy workplace. In an effort to boost productivity and achieve organizational goals, businesses should work to keep their workers safe and healthy. By putting safety procedures and preventative measures in place, workplace accidents are decreased, which lowers expenses and operational interruptions. Good health and safety initiatives make it possible to draw in and keep talented and devoted workers, which cuts down on missed productivity. Workers can concentrate on their job without feeling anxious when they are comfortable and secure in their workplace.

Improving safety performance is mostly dependent on training. Better safety results are obtained by organizations that invest in thorough safety training programs. Increased production and higher-quality goods and services are the results of this feeling of security, which also increases efficiency and productivity. On the other hand, a business's bottom line may suffer from absenteeism, increased downtime, and lower overall productivity brought on by frequent accidents or injuries. This chapter begins by providing the study's history before going on to the problem statement, research questions, research goals, importance of the study, term definitions, study delimitation, and study limitations. The chapter ends with a summary.

1.2 Background of the Study

Training and staff development are important factors in enhancing safety performance worldwide (Chikove, 2023). Accordingly, companies that spend money on thorough safety training initiatives often see improved safety results. The Western Australian (WA) resources regulator is dedicated to enhancing safety and health outcomes in the mining industry, according to the Department of Mines, Industry Regulation and Safety (2022). In order to encourage initiatives to enhance worker health and safety across the industry, the Australian government aims to analyze the accidents and

events that are reported to the government of Mines, Industry Regulation and Safety (DMIRS). According to the DMIRS (2022), the mining industry in Western Australia reported two fatalities in 2020–2021, both at underground gold operations, and a startling 458 mine workers experienced a lost time injury (LTI), which is defined as a work injury that causes a worker to miss at least one full day or shift of work at any point after the day or shift on which the injury occurred. As a result, employee training increases knowledge of possible risks, hazards, and safety procedures, which makes people more watchful and proactive in averting mishaps. Numerous Australian mining enterprises, including Pilbara Iron Ore Mines, Paraburdoo Iron Ore Mine, Channar Iron Ore Mine, Hope Downs Iron Ore Mine, Mount Whaleback Iron Ore Mine, and Jimblebar Iron Ore Mine, have documented incidents that they attempted to control via training (Cliff, 2024). In the mining business, training has shown to be the key to preventing catastrophic mishaps. Western Australian companies are now required to ensure that all mine workers obtain enough and efficient training so they can work safely in their particular mining environment.

Bochkovckyi & Sapozhnikova (2020) have stated that there are interesting improvements that the industry in Ukrainian mining has to work out to boost the levels of safety; however, there is still a lot to be done as far as training is concerned to ensure that the people are not ignorant when it comes to health matters. Thus, due to the specifics of the policies of normative legal acts in the field of occupational health and safety, ensuring the health and safety of employees of the company includes the role of providing health and safety training to employees, carried out under the guidance and control of company leaders. As it was reported in a Portuguese study by Duarte, Marques, and Santos (2021), surface and underground mining is considered a risky business due to technological challenges. Consequently, one should keep in mind an important fact that insufficient or lack of proper training methods are frequently associated with the overwhelming majority of accidents and fatalities. Wang et al. conducted a study of the evolvement and reformation of coal mine safety in China in 2022. It had the analysis of miner training, technical gear and state supervision. This study sought to evaluate the effectiveness of coal mine safety governance of the Chinese government and perform systematic investigation of the reform policies. The research established that training has the most eminent role in enhancing the health and safety of the miners. Petrova, Tepavicharova and Dikova (2018) examined the possibilities of staff training in mining and quarrying in Bulgaria. The report has stated that the need of a

professional, highly trained personnel is very important to the current high-tech, globalizing economy in the attempt to minimize the number of workplace accidents. Human capital performance, assessment, and career growth process are related with professional skill and competency building growth. In the report, it has been mentioned that numerous firms are trying to find innovative and unique ways of increasing productivity and retaining a competitive advantage to remain in the market. Development of professional competencies is closely linked with performance, measurement, and career development activities of human capital. Such capabilities should be established through continuous efforts aimed at improving certain information, skills and abilities. In 2021, Gendler, Tumanov, and Levin conducted a study of the principles of the employment, training, and retention of workers in the Russian mining companies who possess the required skills to perform the work on the safe basis. In the study, it was evident that the training of employees to maintain the safe working skills would be critical in reducing the potential of accidents and injuries when working at the mining industry. The researchers confirmed the necessity to grant mine personnel with professional training and development, moreover, it is of main importance to monitor the state of their functionality.

Although extensive legislation pertaining to health and safety standards and processes to assure compliance exist throughout Africa, many organizations usually lack the resources and adherence to these rules (Greere, 2022). Ghana is one of many sub-Saharan African nations with commercially significant mineral resources (Mensah et al., 2022). Although industrial mining is anticipated to boost Ghana's economy and enhance the quality of life for its people (Aram et al., 2021), the extraction of gold has significant health and safety risks due to the loss of life; thus, employee training may be the key to averting the disaster. According to Muthelo et al. (2022), the rules and guidelines implemented to support a healthy work environment serve as a guide for the miners' health and safety in the South African mining sector. These rules and guidelines must be followed by the miners in order to safeguard themselves against possible hazards to their health and safety at work, mishaps, and deaths. According to Singo et al. (2022), the main factors that lead to inadequate safety compliance are non-compliance with pertinent health and safety laws, a lack of specific health and safety regulations, and poor coordination of activities in many organizations. The mining sector in South Africa is governed by laws, rules, and guidelines that help both employers and employees maintain a safe and healthy workplace. The South African mining business enacted laws in an attempt to help reform and enhance safety standards in the

mining sector since, according to Muthelo et al. (2022), accidents have been quite common in this sector. Therefore, the health and safety requirements for miners are essential socioeconomic rights that might be challenged.
According to Ngqeza & Dhanpat (2021), inadequate training practices are often blamed for the high number of accidents and deaths in the mining sector of South Africa. In order to try to stop the chaos, it is imperative that strong training programs be implemented. Essentially, it is recommended that South Africa's mining industry make significant investments in training programs that would address the various demands of the sector as a whole. According to the Council for Scientific and Industrial Research (2024), major platinum mining companies have implemented various training techniques to improve health and safety protocols at their establishments. These include Anglo American Platinum's Mogalakwena mine in Limpopo, Impala Platinum's Impala mine in Gauteng, Lonmin's Marikana mine in North West, and Northam Platinum's Zondereinde mine in Limpopo.

Singo and colleagues (2022) confirm that gold Gold mining in Zimbabwe is often linked to inadequate or nonexistent health and safety measures. The authors also point out that although gold mining in Zimbabwe was often featured in the news due to deadly incidents, preventative measures received less attention. Therefore, it can be said that mining poses health and safety hazards, for which mitigation strategies should be developed in order to boost output, effectiveness, and efficiency. Training is an organizational endeavor that attempts to provide workers with the fundamental skills necessary for the effective performance of the tasks for which they are employed, claims Chikove (2023). Productivity has been delayed in Zimbabwe's mining industry due to health and safety issues (Matsa, 2020). As a result, mining is a dangerous job that needs ongoing training for staff members to ensure they are constantly aware of health and safety regulations. At their core, well-trained staff members provide goods and services of superior quality. Knowledgeable, competent, and self-assured workers have a favorable effect on the overall caliber of the product.

According to Matsa et al. (2020), who studied health and safety concerns in artisanal and small-scale gold mining in Penhalonga, Zimbabwe, workers' dedication to their employer is increased when they are knowledgeable about occupational health and safety. In order to improve the quality of safety and health for all workers, it is crucial to create a systematic, complete safety program.

Training helps employees learn about safety procedures, danger awareness, and safe work habits.

Mimosa Mining Company, Zimplats, and Unki Mines have training programs in place to prevent accidents at their workplaces and improve health and safety standards, according to the Chamber of Mines of Zimbabwe (2023). Safety protocols, emergency response, and danger awareness are all included in the extensive induction training offered by platinum mining corporations to new hires. There are also frequent safety training courses. To address particular threats and reinforce safety procedures, continuous training sessions, seminars, and exercises are continually held (Singo et al., 2022).

Additionally, equipment operators at Mimosa Mining Company get specialized training that emphasizes safe operation, maintenance, and troubleshooting. Additionally, the company offers emergency response training, which includes instruction in firefighting, first aid, and rescue techniques for emergency response teams (CMZ, 2023). Supervisors and managers are trained by gold mining companies like How Mine and Blanket Mine to foster a culture of safety and effective safety leadership.

It is crucial to highlight that organizations in the diamond mining industry, like Murowa and Chiadzwa Diamond Mines, provide risk assessment training to their staff members, teaching them how to recognize, evaluate, and reduce hazards in their workplaces (Chikove, 2023). The training and development sections of the companies also often organize safety awareness programs that highlight certain safety topics or dangers. Additionally, in order to exchange best practices and capitalize on experience, they collaborate with regulatory agencies, training institutions, and industry peers via collaborative training programs (Sun, Jiang, & Wang, 2024).

It is also important to remember that Zimbabwean gold, diamond, and platinum mining corporations also use cutting-edge training techniques, such immersive virtual reality (VR) experiences and virtual reality (VR) training, to improve safety training and replicate dangerous situations (Sánchez & Hartlieb, 2020). Additionally, the companies employ online training platforms for accessible and adaptable safety training, as well as simulators to teach operators in a controlled environment.

Artisanal and small-scale gold mining (ASGM) is often linked to a lack of or a compromised focus on health and safety, according to Singo et al. (2022). Despite ASGM's reputation for deadly accidents in Zimbabwe, training is not given enough consideration as a risk mitigation strategy.

Thus, it can be said that the significance of health and safety training cannot be emphasized in a workplace that is becoming more complicated and dangerous. According to Whitehead (2022), health and safety training is essential for safeguarding workers' health, averting mishaps, and preserving a secure workplace. It contributes to a safer workplace, inspires employees to advocate for better conditions, and helps reduce work-related diseases and injuries.

1.3 Problem Statement

In its office, field, and workshop, Mitchell Drilling International has consistently raised the bar for occupational health and safety. Therefore, the worldwide drilling giant places safety at the center of all it does. Health and safety concerns have had a significant impact on Mitchell Drilling International. If safety is neglected, the multinational corporation's industries—mining, exploration, and great control drilling—are among the riskiest. For the year that ended in 2019, Mitchell Drilling International documented the following safety statistics: First Aid Injury (FAI) was 1, Medical Treatment Injuries (MTI) were 3, and the Medical Treatment Injury Frequency Rate (MTIFR) was 0.89 out of 335,927 working hours. Notably, many first aid injuries were reported in 2020. Additionally, the medical treatment injury frequency rate (MTIFR) was 0.18 in 2021, with some workers receiving treatment for work-related injuries (Incident Statistics Program, 2023). In light of this, Mitchell Drilling International has documented accidents, most of which are related to the kind of job that workers do on a daily basis. It is crucial to remember that staff training may reduce the amount of deaths and hazardous incidents that occur inside the company. Employee training is necessary in an effort to improve health and safety standards since, at their core, flammable gases may escape during drilling, blowouts, tripping out, and flashing out and react with the air, potentially causing explosions. Additionally, it should be mentioned that employees of Mitchell Drilling International run the danger of being struck by falling or moving materials like drilling rods, stilson, compressed air and hydraulic systems, as well as light and heavy vehicle movements. Among the risks that Mitchell Drilling International may face in the course of their activities include hazardous materials or chemicals, physical labor, working at heights, rotating or moving components, electricity, and the remoteness of exploration. Workers have sometimes been struck by whipping hoses due to malfunctioning high-pressure hose connections.

With a focus on Mitchell Drilling International specifically, this research aims to provide a structural model of the interaction between training, quality, and health and safety.

1.4 Purpose of the Study

With a focus on Mitchell Drilling International (MDI), this research aims to provide a structural model of the link between quality, training, and health and safety in the mining sector.

1.5 Research Objectives

1.5.1 General Objective of the Study

In order to answer the research questions in this study, the **overarching objective** is to develop a structural model on the relationship between training, quality and health & safety at Mitchell Drilling International. The sub-objectives are as follows:

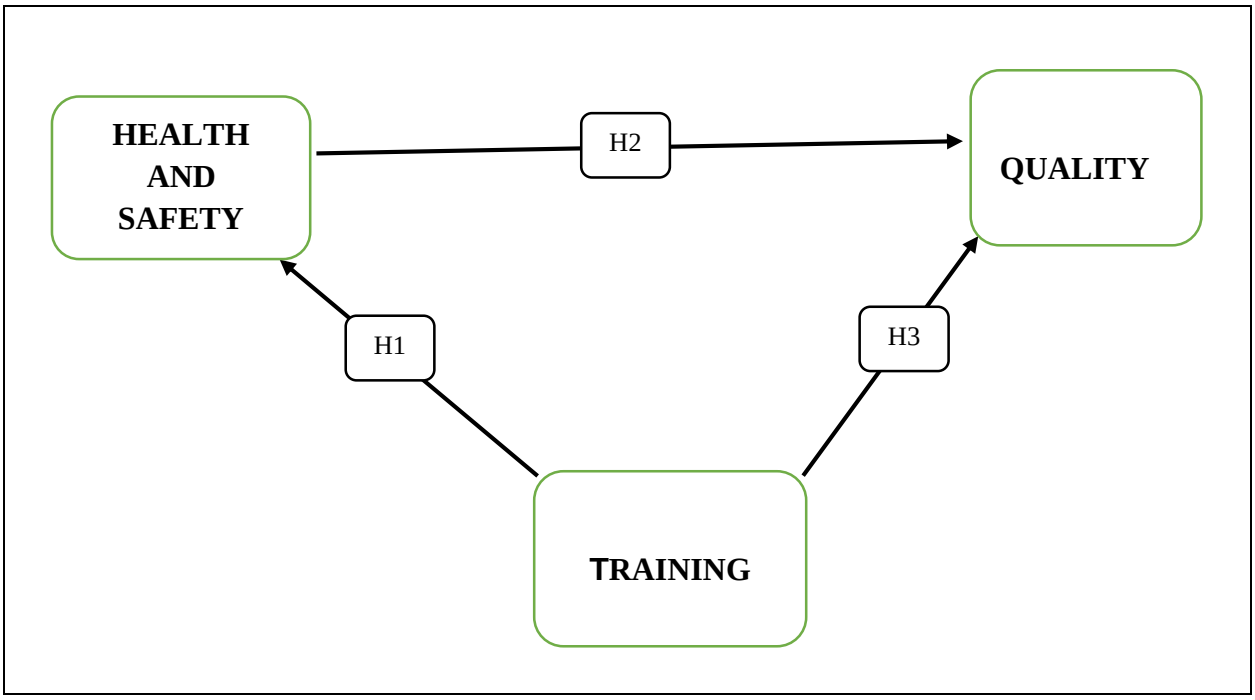
1.5.2 Specific objectives

1.5.2.1 To explore the relationship between training as well as health and safety.

1.5.2.2 To examine the relationship between health and safety and quality.

1.5.2.3 To discover the nature of the relationship between training and quality.

1.6 Research Hypothesis



Source: Researcher (2024)

H1: Training is positively associated with Health and safety.

H2: Health and safety are positively associated with Quality.

H3: Training is positively associated with Quality.

1.7 Justification of the study

The goal of this research is to create a structural model of Mitchell Drilling International's training, quality, and health and safety relationships. Thus, it aims to solve the international entity's health and safety problems. Key people have been lost as a result of Mitchell Drilling International's inability to implement health and safety regulations.

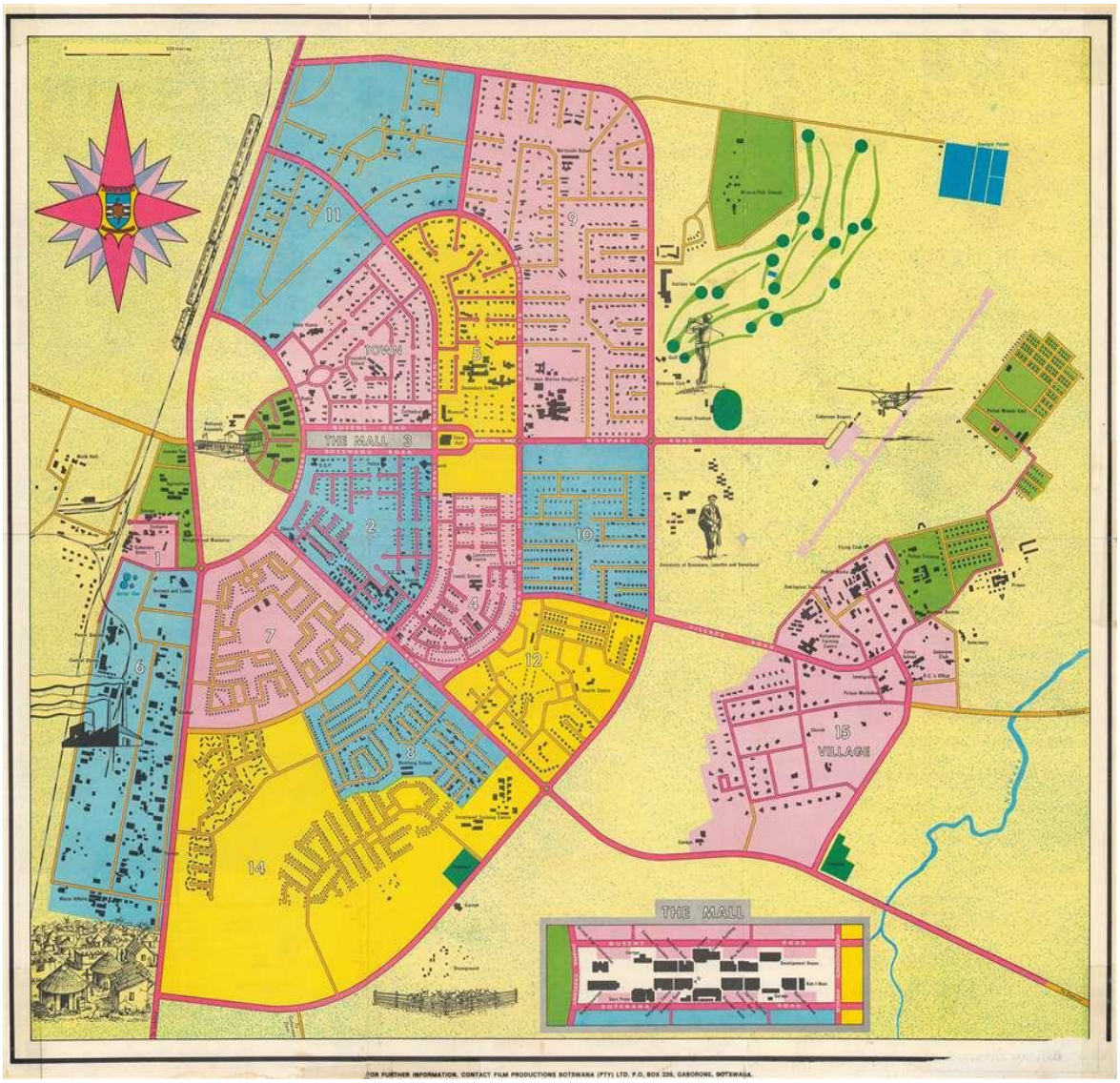
In order to address health and safety concerns that have resulted in the loss of important employees due to workplace accidents, managers should recognize and appropriately use training techniques. This study is significant because it might have an impact on future research, practitioners, and policymakers that are interested in creating a structural model for improving quality and worker health and safety via training.

The results of this study will be useful to all parties involved in the mining business, including management, mining corporations, and health and safety specialists. The knowledge they acquire will help them make wise choices and put plans into action that will increase worker job satisfaction. These tactics may include improving health and safety initiatives, training and development programs, and cultivating an engaged culture, all of which will eventually result in a more contented and productive staff.

1.8 Study area delimitation

1.8.1 Geographical Delimitation

Figure 1.1 Geographical Delimitation of Mitchell Drilling International (MDI)



Source: https://mapcarta.com

The study focuses on Mitchell Drilling International in particular. By concentrating on this global organization, the research topic becomes more focused and controllable. The scope should be restricted regionally since different places may have distinct contextual elements affecting work satisfaction.

Located in Botswana's capital city of Gaborone, in the country's southeast, lies the international mining behemoth.

Physical Characteristics

The coordinates of Mitchell Drilling International are 24.65° S, 25.91° E. 1,014 meters above sea level is the elevation. It is located in an area with a semi-arid climate, meaning that summers are hot and winters are moderate. Sand loam to clay loam is the kind of soil. The range of temperatures is 50-91°F (10-33°C). There is a seasonal trend to the rainfall, with the majority falling between November and March (500 mm on average every year).

According to Gunanda & Koestoer (2023), Gaborone is located in the southeast region of Botswana, between Kgale Hill and Oodi Hill, close to the meeting point of the Notwane and Segoditshane rivers, and 15 kilometers (9.3 miles) from the South African border. Sir Seretse Khama International Airport serves the city. Although Gaborone is the seat of the neighboring South-East District, Ikaneng (2024) confirms that it is an administrative district in and of itself. Gaborone is often referred to the locals as GC or Motse-Mshate. According to Ouma et al. (2021), Gaborone is among the African cities with the quickest rates of growth. Much of the surrounding countryside has been incorporated into Gaborone due to its expansion, particularly its suburbanization. With a few smaller farms on the southern side, the majority of Gaborone's food comes from farms north of the city.

According to Neba et al. (2023), the city center was intended to be functionalist, with significant structures constructed in the modern architectural style. Smaller structures around the city. When someone mentions "downtown," they really mean the Main Mall and Government Enclave, which are often home to big structures, while the city's core business district (CBD) is still being built (Suh et al., 2023). The Main Mall is a car-free retail and business district that runs east-west, with the Gaborone City Town Council complex on the east and the Government Enclave and National Assembly on the west.

According to Mphoeng (2021), Gaborone has little and irregular precipitation. In Gaborone, the summer months of October through April see the majority of the country's rainfall. There are typically four days of fog, which typically occur in the winter, and forty days of thunderstorms annually, the majority of which occur in the summer (Ghosh et al., 2024). According to data dating back to 1995, Gaborone has seen three floods: one in 2000, one in 2001 that caused damage estimated at 5,000,000 Botswana pula, and one in 2006.

Statistics Botswana (2022) reports that 246,325 people live there as per the 2022 census. In the city, there are 127,598 females and 118,727 men. In Gaborone, there are 58,476 households. More over 10% of Botswana's population resides in the city of Gaborone (Okano et al., 2021).

Additionally, about half of Botswana's population resides within 100 kilometers of Gaborone. In addition, Gaborone has the greatest population growth rate in the nation, at 3.4%. This is perhaps because the city is more habitable due to its more advanced infrastructure. One of the cities in the world with the quickest rate of growth is Gaborone. Net in migration from the rest of Botswana accounts for a large portion of the expansion (Chu et al., 2021). In Gaborone, there are 963 males for every 1,000 women, or a sex ratio of 96.3. Gaborone is where the majority of Botswana's weddings are recorded; in 2007, 15% of all marriages in Botswana were registered in Gaborone. In Gaborone, households typically have 3.3 people (Statistics Botswana, 2022). In comparison to the rest of Botswana, this is a small number. June has the greatest relative humidity (90%) while September has the lowest (28%). In June, solar irradiance is 4.1 kWh m−2 d−1, while in December, it is 7.3 kWh m−2 d−1. According to Mphoeng (2021), it is calmer from May to August at 8 km/h (5.0 mph) and windier from September to November at 14 km/h (8.7 mph). In a given year, the average wind speed is 12 km/h (7.5 mph).

Socio-Economic Activities.

City, business, and residential land use are the most common land uses. Mining, tourism, banking, and government make up the major industries. Mitchell Drilling International is located in a mostly agricultural area. Additionally, there is minor subsistence farming. The density of the population is around 1,500 persons per km². At almost 85%, the literacy rate is also high. According to www.mitchelldrillinginternational.com, the average monthly wage in Botswana Pula (BWP) is between 10,000 and 50,000 (USD 900 to 4,500), indicating that the income level varies from moderate to upper-income.

Diamonds are the primary export from Botswana, according to Bakwena (2023). It is the world's second-largest exporter of diamonds as of 2024. Because Botswana depends so heavily on diamonds, a robust worldwide demand is essential to the country's economic stability. Mogotsi (2023) believes that diamond exports have given Botswana's economy a solid source of foreign cash, served as a foundation for industrial growth, and encouraged infrastructural upgrades. There are worries that diamond mines are not labor-intensive enough to employ enough people in Botswana, despite their significant contribution to the country's economy (Bakwena, 2023). This mismatch has been identified as one of the reasons for the structurally high unemployment rate in

Botswana. In 2019, tourism accounted for 13.1% of Botswana's GDP, making it a growingly significant sector. Nevertheless, it was said to be less than 10% as of February 2024. Botswana's Okavango Delta is home to one of the world's most distinctive ecosystems (Oxford Analytica, 2024). Game viewing and birdwatching are available in the Delta and Chobe National Park, which is home to one of the world's biggest herds of free-ranging elephants. According to Mogotsi et al. (2024), Botswana's Central Kalahari wildlife Reserve provides wildlife watching as well as some of the most pristine and isolated wilderness in southern Africa. Many national parks and game reserves are popular tourist destinations because of their wealth of animals and wetlands. Chobe National Park and Moremi Game Reserve in the Okavango Delta are the primary safari travel destinations (Oxford Analytica, 2024). By making an effort to engage the local population in tourism, Botswana is also taking part in community-based natural resource management initiatives. Food processing, primarily beef processing, diamond processing, textile and garment manufacturing, beverage manufacturing, jewelry manufacturing, metals and metal products, soap manufacturing, construction material manufacturing, and glass production are among Botswana's manufacturing industries (Chiwira et al., 2024).

Although manufacturing only makes up around 5% of the country's GDP, it has room to increase (Mogotsi et al, 2024). Over time, the manufacturing sector's contribution to the national economy has significantly decreased. According to Oxford Analytica (2024), there are many reasons behind this, but the primary ones are a lack of skills, a failure to stay up to date with the newest technological advancements, a lack of competitiveness, and poor marketing strategies. The scientific industry in Gaborone is expanding (Chiwira et al., 2024). Scientific productivity in the nation is among the greatest in Sub-Saharan Africa (Sander, 2024). Due to the presence of several information technology businesses, the nation also boasts a high-tech sector. Botswana exported around $38 million worth of high-tech goods in 2022. As of 2024, Oxford Analytica The detective novels written by Alexander McCall Smith and the American dramatization of these works have boosted tourism.

Living in rural regions and relying on livestock farming and subsistence crops, over half of Botswana's population is rural. Melefhi (2021). Seleka et al. (2023) state that as of 2017, agriculture only serves a tiny percentage of Botswana's food demands and accounts for 1.8% of the country's GDP. Estimates for 2024 showed that it remained below 2% of Botswana's GDP

(Sander, 2024). Before gaining independence, the social and economic life of Botswana was centered on cattle rearing. Although it terminated in late 2023, the Botswana Meat Commission (BMC) still controls the majority of the country's beef output (Mogotsi et al, 2024).

1.8.2 Population Delimitation

An employee sample of Mitchell Drilling International is the focus of the investigation. It is not practical to research the whole population because of the size of the industry and the variety of employment positions. Consequently, a carefully chosen sample was representative of the whole population. The research focused on workers in a variety of positions in a variety of mining enterprises within the selected geographic region, including middle management, administrative personnel, and miners.

1.8.3 Time Delimitation

This study's data collecting will take place from 2020 to 2024. The study's reflection of relatively recent experiences and situations in the drilling industry is guaranteed by this time span. Potential modifications to procedures, rules, and outside variables that might affect health and safety regulations are taken into consideration.

1.8.4 Conceptual Delimitation

The study's main emphasis is on the conceptual framework that includes quality, training, and health and safety. For this research, any additional data that falls outside of this range will not be taken into account.

1.9 Research Limitations:

- The information at Mitchell Drilling International is very private and confidential hence it is not easily accessed. The researcher will guarantee the management all the confidentiality regarding the information given and above all emphasise that this information is needed solely for the purpose of this research.
- The researcher is a full-time employee of Mitchell Drilling International therefore he might not get enough time as is necessary to do the research. This is the reason why the researcher

selected Mitchell Drilling International which are within his reach. Where necessary the researcher will use his vacation days to carry out the research.

- Bindura University of Science Education gave a time limit in which the research has to be completed. This tends to limit the researcher to unearth and do as much coverage as he wanted if there was no deadline to beat. The researcher will take a vacation leave so as to get ample time to do the research.

1.10 Dissertation Organisation (Chapter Outline) :

Chapter 1 : Introduction

Prior to providing a chapter summary, Chapter 1 provides the study's background. It also highlights the problem statement, the study's purpose, the research question, the research objective, the study's significance, the study's delimitation, and the chapter outline.

Chapter 2: Literature Review

The theoretical foundation supporting the investigation and the formulation of the hypotheses are provided in this chapter. The chapter comes to an end with the chapter summary.

Chapter 3: Research Methodology

Chapter 3 provides a detailed description of the research plan and technique used in this investigation. Additionally, the target population, sample procedures, and sampling methods are covered in this chapter. A questionnaire for the quantitative research technique is one of the research tools used, and it also describes the procedures for collecting data. This chapter comes to a close with the summation.

Chapter 4: Results

The presentation of the gathered data, quantitative analysis, and data interpretation are all included in this chapter. The chapter is concluded with a summary.

Chapter 5: Discussion

This chapter's main goal is to go over the study's main conclusions. It also contrasts the findings with previous research. The chapter concludes with a summary.

Chapter 6: Conclusion and recommendations.

The summary and findings are presented in this chapter. Additionally, it provides suggestions for both the study and further research.

1.11 Chapter Summary

In the instance of Mitchell Drilling International, this study aims to provide a structural model of the connection between quality, training, and health and safety. It recognizes its limits, including those related to time, resources, sample size, and data gathering difficulties. The research makes the following assumptions: industry relevance, data quality, and employee collaboration.

In Chapter 2, a thorough literature study will be examined.

CHAPTER II

LITERATURE REVIEW

2.0 Introduction

The chapter includes the literature of numerous authors and sources that refer to the constructs used in construction of a structural model of the relationship between safety, quality, training, and health of Mitchell Drilling International. Other relevant pieces of work by other authors and researchers that are related to the theoretical framework of the study are also considered. The last item in the chapter is a synopsis.

2.1 Theoretical framework

2.1.1 Psychology of Working Theory

Allan et al. (2021) suggest that Psychology of Working Theory (PWT) provides the explanation of the impact of marginalization and discrimination experiences on the role of career development process and the impact of low work volition and high barriers on professional decisions and satisfaction. Consequently, the PWT provides the theoretical basis of a designing of intervention methods to stimulate workers in mining industry to take flexible decisions. Counseling psychology since the very start has focused hard on understanding the influence of work on the lives of individuals (Pereira et al., 2019). The Psychology of Working Theory (PWT) therefore posits that sociocultural factors must rank first in studying the career decisions and working life of all employees in any, industry regardless of their ancestry. Keeping in mind the role that privilege, social standing, and the freedom of choice has in profession selection and realization, the Psychology of Working theory as the supplement to existing vocational theories was developed by Duffy et al. (2016). The theory of Psychology of Working relies on the concept of decent work that is relevant since it seeks to create an environment where individuals of depressed and working-class background, marginalized and disenfranchised communities, and individuals are treated with dignity and respect. Because the Psychology of Working theory offers a holistic conception of work that crosses privilege and identity positions, its underlying objectives are compatible with the emphasis of counseling psychology on social justice and multiculturalism and the intersectionality approach (Blustein et al., 2023; Allan et al., 2020a; Duffy et al., 2016). In such a way, it is important to take into consideration that career development movement relies on the amount of control that people possess over the decisions they make about work and, above all, it

is a set of a series of counseling methods which are gradually added with the focus on bolstering those who have a superior amount of privilege and choice. Also, as the employees working in the mining industry start becoming more self reliant; numerous career opportunities are created which further provides decent jobs in the industry. In fact the Psychology of Working Theory is based on the growth of the more traditional theory of career development and choice which has emerged over the past decade (Blustein, 2006, 2008) giving rise to a perspective with a number of related assumptions.

Recent work by Blustein (2019) summarized the main tenets of the Psychology of Working Theory. According to the notion, labor plays a crucial role in both mental health and life. The explanation of the psychological character of working should also not favor any one epistemology over another. (Duffy et al., 2016) The psychological study of working should be inclusive, covering all people who work or want to work worldwide. Work and nonwork experiences are often interwoven in various contexts. Additionally, according to the Psychology of Working Theory, employment encompasses both commercial endeavors and caring, which is often marginalized in both social and economic contexts (Blustein & Duffy, 2020). The ability of employment to satisfy three basic human needs—the need for power and survival, the need for social interaction, and the need for autonomy—must therefore be important to remember.

Research showing that work is a main means of meeting demands and consequently enhancing well-being is extensive (Deci et al. 2017), similar to earlier studies on structural determinants in connection to job outcomes (Blustein & Duffy 2020). There are thus connections between meaningful work and decent work, according to the Psychology of Working Theory. Unquestionably, doing good work increases job happiness, which in turn elevates one's feeling of purpose in their work and facilitates employee retention.

2.1.1.2 Justification of Using Psychology of Work Theory

A framework and theory called the Psychology of Working Theory was created to document the broad range of people's work experiences (Duffy et al., 2016; Brill, 2021). This suggests that the theory particularly seeks to forecast a person's ability to get respectable employment based on their

experiences with discrimination and marginalization. Accordingly, it theorizes that one's overall well-being and at-work well-being are significantly influenced by good employment (Buyukgoze-Kavas & Autin, 2019). Therefore, the PWT is highly helpful in the mining industry, where it is important to accept the decent work concept to prevent excessive labor turnover. To recruit and retain essential workers, mining management should provide proposals on contextual predictors of obtaining quality job.

On a personal level, knowing what psychological requirements are satisfied by one's employment might assist one in making better life choices (Baranik et al., 2022). In essence, because technology is displacing or altering a large number of employment, it is equally critical to comprehend the psychological benefits of labor and occupations. For instance, workers in the mining industry in Zimbabwe would understand what constitutes "good" labor and what constitutes "good" work thanks to their understanding of the Psychology of Working Theory. According to Bailey and Madden (2019), doing excellent work gives individuals a purpose, increases social networks, offers employment stability, and generates a respectable wage. Consequently, this enhances both mental and physical health. Good employment has health advantages that extend beyond working-age individuals to their children, their communities, and their larger social networks.

Employee retention results from the Psychology of labor Theory because workers will learn what constitutes acceptable labor (Bailey et al., 2017). In an effort to retain top personnel, managers in Zimbabwe's mining industry may create employment that allow for some autonomy and control, foster mental wellness, and lower stress levels in addition to making sure the workplace is safe and healthy. Work-life balance, proper career advancement, and the balance of power between employers and employees are all supported by the Psychology of Working Theory (Bailey et al., 2019; Allan et al., 2020b; Blustein et al., 2023). As a result, many managers have a blind spot where they believe that everyone else wants the same things from their job. To put it another way, in an effort to retain personnel, incentives should be customized to meet their diverse demands. According to Duffy et al. (2016), good employment has a significant effect on employees' health. As a result, individuals suffer and their health deteriorates without it. Since contented and healthy workers are more likely to be productive and perform well at work, Mitchell Drilling International should provide its employees respectable jobs.

2.1.2 Employee Engagement Theory

According to employee engagement theory (EET), organizations may boost employee happiness and maximize production by providing challenges, support, and inspiration (Khan, 1990; Schaufeli, 2013; Duarte, et al., 2021). Employee engagement frameworks, employee engagement tactics, and best practices are so tightly tied to this paradigm. This theory states that businesses with high employee motivation and loyalty reap the benefits of employee engagement, including reduced absenteeism and turnover, improved customer satisfaction, larger profits, and heightened creativity and innovation (Langseth-Eide, 2019; Lee & Huang, 2019; Huang et al., 2021; Khusanova, et al., 2021). As a result, numerous employee engagement software programs, initiatives, and events are built around the basis of employee engagement theory.

In organizational psychology, the idea of employee engagement has been extensively researched and debated (Khan, 1990; Schaufeli, 2013). It speaks to the strong emotional connection and dedication that workers have to their jobs. In 1990, William Kahn put out one of the first ideas on employee engagement. "Harnessing of organization members' selves to their work roles: in engagement, people employ and express themselves physically, cognitively, emotionally, and mentally" is how he described personal engagement (Khan, 1990). As a result, motivated workers strive to meet both organizational and personal objectives. Three psychological conditions—meaning, safety, and availability—are crucial for engagement to take root, according to Kahn (Huang et al., 2022).

Schaufeli (2013) investigates the many meanings and aspects of involvement. According to him, engagement is a condition that is marked by fervor, devotion, energy, participation, passion, excitement, absorption, and concentrated effort. Schaufeli also draws attention to the difference between "work engagement" and "employee engagement," the latter of which focuses on the interaction between workers and their jobs (Ariza-Montes et al., 2018). Therefore, the goal of employee engagement theory is to identify the elements that lead to workers having a good experience at work and being ready to go above and beyond the call of duty. According to Basinska & Daderman (2019), companies looking to improve worker performance, job satisfaction, and well-being may benefit from the use of employee engagement theory. Thus, the notion that

employee engagement is linked to goal setting. Connotations of engagement are employed on a daily basis to describe participation, fervor, devotion, energy, passion, excitement, absorption, and concentrated work (Schaufeli, 2013; De Carlo et al., 2020). As a result, when leadership is considering how to increase employee productivity, loyalty, and retention, the Employee Engagement Theory provides a point of reference.

One of the first experts to use the word "employee engagement" was Kahn (1990:1), who defined it as "the harnessing of organization members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances." Therefore, engagement is the best scenario in which workers don't compromise their jobs or themselves at work. Whether working alone or with others, they are physically engaged in tasks, intellectually alert, and sympathetically attached to others for the sake of the job.

Martinez et al. (2021) found that a worker's motivation and mood were impacted by things like social connections with coworkers, more attractive physical surroundings, and top management's care, which raised employee retention and productivity rates. Employee Engagement Theory so emphasizes that workers may relate to the company's goal, culture, and day-to-day responsibilities: availability, safety, and meaningfulness. Additionally, Khan described three aspects of engagement: emotional, cognitive, and physical (Oh et al., 2018). In other words, employees may demonstrate a variety of commitments via their behaviors and attitudes, including daily activity levels, confidence in routine duties, innovative contributions and decision-making, and devotion to the firm and organization.

2.1.2.1 Justification of Using Engagement Theory

Employee engagement theory, according to Hossan (2016), is the formal notion that organizations may boost employee happiness and maximize staff performance by motivating, encouraging, and pushing workers. In line with this theory, businesses that have high levels of employee loyalty and motivation reap the benefits of employee engagement, including lower absenteeism and labor turnover, higher customer satisfaction, larger bottom lines, and more creativity and innovation (Smithikrai & Suwannadet, 2018). Thus, by using employee engagement initiatives, mining companies in Zimbabwe will be able to maximize the potential of their workforce. Fundamentally,

a person who is completely engrossed in and passionate about their job and actively works to further the organization's interests and reputation is often considered a "engaged employee" (Ariza-Montes et al., 2018). This suggests that a motivated worker feels good about the company and its principles. In contrast, a disengaged employee might be anything from someone who is 'coasting'—doing the absolute minimum at work—to someone who is deliberately harming the company's brand and productivity (Huang et al., 2022). Thus, an organization with a high level of employee engagement performs better than one with a low level of engagement. According to Khusanova et al. (2021), engaged workers exhibit more positive traits including trust, dedication to the company, and basic job satisfaction. Therefore, the concept of employee empowerment and voice is associated with employee engagement. According to Langseth-Eide (2019) and Lee and Allen (2002), high-involvement management methods have a good correlation with employee morale, retention, and company financial performance. This suggests that companies with a high level of commitment—those with devoted and loyal workers—performed better than those with a low level. Engaged workers exhibit a high degree of dedication. According to Oh et al. (2018), engagement is correlated with both employee happiness and organizational success since the most committed individuals are less likely to quit the company. This means that productivity will inevitably rise when employers are more sympathetic. It's important to emphasize that motivated workers produce more (Martinez et al., 2021). Productivity and work happiness are so related.

2.1.3 Expectancy Theory

The expectation theory is a process-related theory that deals with how workers select between various behaviors and effort levels and focuses on various employee perceptions and ideas (Mappamiring et al., 2021). As a result of their expectations, workers' subjective evaluations of the surroundings and behavior are given special attention by the theory. The idea raises two basic questions. The first is that an employee will only be motivated to contribute to the organization if they think the outcome will lead to a certain degree of performance, regardless of the other outcomes that are possible (Armstrong, 2021). Put another way, workers won't be motivated to do the assigned job if they don't think they can perform at a certain level. The second problem is that workers will only be inspired to perform at a certain level if doing so will result in the intended

results (Garengo et al., 2021). Additionally, Alqudaha et al. (2022) connect the path-goal theory to the expectancy theory's underlying presumptions and assert that workers are more likely to perform well if they have faith in their ability to complete a task, that they will accomplish the desired result, and that they will obtain the outcome that they value most. According to the expectation theory, an employee will only be inspired to participate and exert effort in a task if the two important components result in a favorable outcome (Armstrong, 2021). This suggests that an employee will be more inclined to carry out a certain activity if it is seen to be associated with more favorable results. The key tenet of the theory is that "the desirability of the outcome determines the motivation for behavior selection." To put it another way, the expectation theory is founded on the observation that individuals base their choices on the outcomes they anticipate from their actions (Linag et al., 2022). This theory aims to forecast and explain the level of motivation in relation to predicted behaviors and rewards. Employee decisions are based on the likelihood that their actions will result in the intended outcome, and research highlights how a person's perception, judgment, and choice in a given circumstance influence their decision-making. (Ghani and others, 2022). Victor Vroom has a well-known hypothesis on expectancy in motivation. The idea relies on three cognitions in his model. The first is "valence," which describes how alluring the benefits are. The employee will think about how much he or she desires the potential reward before choosing the course of action. The connection between a performance and a reward is known as "instrumentality," and it is the second cognition. Employee confidence in the company is a factor in this component, and they will consider the likelihood that meeting performance standards will result in a particular award.

Expectancy theory also suggests that results have to be connected to levels of job performance or desirable organizational behaviors (Omidi and Dal Zotto, 2022). A worker may sometimes lack the motivation to perform at a high level even when they believe that their work will directly lead to a highly valent outcome (Hermawan et al., 2020). The third component of the expectancy theory, expectation, must be taken into account in this situation. One definition of expectation is "the fleeting conviction that a certain action will occur
Factors include having the necessary abilities to do the task, having the suitable resources, having access to important information, and receiving the help needed to do the job all affect expectations (Hellriegel & Slocum, 2011). As a result, in order to recruit and retain qualified workers, managers in Zimbabwe's mining industry must make sure they have access to the necessary resources and

develop their skills via training. Instrumentality, according to Lunenburg (2011), is the belief that a legitimate result will be obtained if you perform effectively. Furthermore, instrumentality is impacted by elements like trust in the individuals who make decisions about who gets what results, how easy it is to determine who gets what results, and how clearly performance and results are related. Accordingly, the expectancy theory focuses on the following three relationships: the performance-reward relationship, which discusses the degree to which employees in the mining industry in Zimbabwe believe that receiving a good performance appraisal results in organizational rewards, and the effort-performance relationship, which suggests the likelihood that an individual's effort will be recognized in his performance appraisal. Thus, one might argue that workers in Zimbabwe's mining sector may be drawn in and kept provided they believe the possible compensation is fair. Stated differently, it is all about how appealing the possible payoff is to the person. According to Vroom, individuals make intentional decisions about their performance at work based on the rewards they would get upon completing a task (Wani, 2022). It may be claimed, therefore, that depending on the benefits they get, workers in the mining business may choose to remain with or quit the companies they work for. Expectancy, valence, and instrumentality are the three components that determine an employee's motivation level, which is the only factor that affected this choice.

According to Armstrong (2021), commission pay plans take use of this principle by letting workers be paid as much as they want, entirely dependent on how well they perform on the job. This means that workers in the mining industry will labor and be committed to the same extent that they anticipate being compensated. As a result, in order to increase employee attractiveness and retention, managers must reward their staff for a job well done. People pick their behavior among several options depending on their expectations of what they stand to gain from each other, according to the expectancy theory (Liao, Cheng & Chen (2022). It may be claimed, then, that the management of the mining industry in Zimbabwe should try to meet the demands of its employees in order to boost their morale, based on the four presumptions mentioned above. Alsafadi and Altahat (2021) define the Expectancy Theory of Motivation as a process theory. As to Baek and Kim (2021), this theory posits that individuals are driven to do action because they believe it will result in the outcome they want. It is crucial to remember that workers in Zimbabwe's mining industry may only put up limited effort until they finally search for new possibilities at another company if they anticipate low pay and no room for advancement in exchange for their labor.

2.1.3.1 Justification of using Expectancy Theory

The principle of expectation has significant ramifications for employee motivation. The model outlines how to change an individual's effort-to-performance expectation, performance-to-reward expectancy, and reward valences in order to increase employee motivation. Below is a description of some of expectancy theory's applications (Votto et al., 2021). Leaders should make an effort to reinforce the idea that workers can do their jobs well. This can be achieved in a number of ways, such as choosing individuals who possess the necessary abilities and knowledge, setting clear job requirements and providing the necessary training, allocating enough time and resources, assigning increasingly challenging tasks based on training, listening to employees' suggestions about how to change jobs, stepping in to try to resolve issues that might be impeding effective performance, giving examples of employees who have mastered the task, and coaching employees who lack confidence (Baek & Kim, 2021). As stated by Armstrong (2021), leaders must essentially make the required performance achievable. Good leaders assist their staff reach that performance level in addition to clearly communicating expectations to them.

Leaders of mining businesses should work to promote the perception that valuable incentives will follow strong performance. The following are some strategies to do this: precisely assess job performance; clearly explain the incentives that will be earned for successful performance; explain how the employee's awards were determined by their prior performance; and provide examples of other workers whose excellent work has led to greater rewards. To put it simply, managers should make a clear connection between the employee awards they want and the precise performance they want. Workers must be able to perceive the workplace incentive system clearly. It is necessary to support declarations of purpose with tangible actions.

2.2 Overview of the constructs

2.2.1 Health and safety

Workers' safety is greatly impacted by miners' understanding of production safety, according to Wang et al. (2022). In essence, safety awareness is a crucial component of scientific literacy for managers as well as employees as it is a crucial tool for influencing and managing workers' risky behavior. Furthermore, mining companies like Mitchell Drilling International must have a strategy

that prioritizes worker health, safety, and welfare, particularly during times of crisis, if they want to get the most out of their workforce (Bajracharya et al., 2023). Employers and management believe that the company should implement and maintain safe working conditions and accident prevention (Baghaei Naeini & Badri, 2024). Therefore, it should be mentioned that management of mining businesses in Zimbabwe needs to be more proactive with their managerial techniques in order to raise knowledge of workplace safety.

In accordance with health and safety requirements, employers must efficiently plan, organize, regulate, monitor, and evaluate the protective and preventive measures that the risk assessment determines are required, regardless of the size and type of the project (Bajracharya et al., 2023). The current safety rules need to include these specifications. However, workers have an obligation to use reasonable caution for both their own and others' safety (Baghaei Naeini & Badri, 2024). To facilitate the process, the employer, represented by management, is required to publish a written statement regarding the safety policy and provide for the selection of safety representatives and safety committees from among the workforce.
Wang et al. (2022) assert that management is in charge of ensuring safe working conditions and preventing accidents, and the human resources manager is often given this duty. Employers are legally obligated to pay workers' compensation if it can be shown that the accident was caused by their carelessness, disregard for established safety norms and laws, or malfunctioning equipment and tools (Baghaei Naeini & Badri, 2024). The primary responsibility imposed on employers by the Factories and Work Act is to protect each employee's health, safety, and welfare at work to the extent that it is practically possible (Bajracharya et al., 2023). But the word "reasonably practicable" qualifies the obligation in every situation. Therefore, it seems that the employer might weigh the risk of harm against the steps required to reduce that risk; if the danger is negligible in comparison to these steps, the employer might not be held accountable (Aksüt, Tamer & Alakaş, 2024). However, one may argue that workers in the mining industry would undoubtedly be reluctant to give their all and become demotivated if their health and safety are in danger. Employers and management have a responsibility to offer a safe and healthy work environment for their workers. Employee motivation may be greatly increased by considering their health and safety, according to Wang et al. (2024). Their motivation to perform will be heightened as a result, and mining organizations in Zimbabwe will accomplish their stated objectives. One of the most

significant areas of human concern is occupational health and safety management (Wang et al., 2022). It seeks to modify the workplace to maximize the physical, mental, and social well-being of employees across all professions. The issue of workplace safety has become so important as a result of globalized economic trends that international organizations have established conventions for standardization in order to help regulate and improve workplace conditions and services (Bajracharya et al., 2023).

2.2.2 Quality

A culture of quality is fundamentally an organizational setting in which quality is not only a collection of policies or processes but rather a fundamental component of the business's philosophy (Palumbo & Douglas, 2024). It goes beyond conventional ideas of quality assurance or control, integrating a dedication to excellence throughout all facets of the company. Continuous improvement, a shared responsibility for providing outstanding goods or services, and a steadfast commitment to high standards are characteristics of this culture (Prayoga et al., 2024; Palumbo & Douglas, 2024). Regardless of their position, all staff members must feel responsible for maintaining and improving quality in this setting.

In a genuine culture of quality, quality is a fundamental value that shapes organizational behaviors, operational strategies, and decision-making processes rather than existing as a stand-alone function (Budur, Demirer, & Rashid, 2024). It turns into a guiding principle that directs company operations and ensures that every choice and activity is in line with the objective of attaining and maintaining high quality. For a business to maintain high standards in all areas, from people and procedures to the workplace, it is essential to establish a culture of quality (Prayoga et al., 2024). To ensure responsibility and consistency, it is crucial to establish a clear definition of quality for your company. An organization that prioritizes quality must promote ongoing development and cultivate an atmosphere that facilitates learning and development. Throughout the whole mining process, from exploration and assessing the economic feasibility of finds to ore processing and optimizing the quality of the end product, quality control, as well as trustworthy testing and analysis, are essential (Nygren-Landgärds et al., 2024). For a business to survive, quality and efficiency are the two most crucial elements. Palumbo & Douglas (2024) contend that efficiency comes after quality. To guarantee the effectiveness of the implementation, only the quality should be considered first. Imagine if the initial step hadn't been taken. Therefore, management of the

company should continually consider quality and encourage the idea of quality. Efficiency is ensured by quality, which comes first. Efficiency devoid of quality is like to lifeless wood. As said by Prayoga et al. (2024), ISO9001 is the process of quality assurance in product manufacturing, and the factory places a strong focus on quality management. Conduct a thorough and prompt inspection and make the necessary corrections in accordance with the protocols if there are quality issues.

Effectiveness is the advantage of quality, according to Budur, Demirer, and Rashid (2024). According to Palumbo and Douglas (2024), the only way for businesses to gain ongoing benefits is through constant efficiency improvement. Quality is the driving force behind the invisible, which is why enterprise research and development and customers are so important. Continuous product renewal, of course, expands the market and encourages the expansion of quality standards to a wider range of industries.

More than merely a business plan, a culture of quality is essential to the success of an organization (Budur, Demirer, & Rashid, 2024). Businesses may increase staff morale, operational effectiveness, customer satisfaction, and brand reputation by integrating quality into their organizational culture. In a time where quality is a crucial differentiator, cultivating a culture that values quality is not only advantageous but also necessary for long-term success and development (Palumbo & Douglas, 2024). A competitive advantage and long-lasting benefits might result from adopting a culture of quality, which will help the organization succeed in the long run.

2.2.3 Training

Today's knowledge-driven world is changing so quickly that it even violates Moor's law (Putra et al., 2024). Even if they remain in the same location, the organizations must operate quickly. The sole source of strategic advantage for an organization is its core competencies, which are cultivated by its employees (Chikove, 2023). Investing in people is the only way to reach such high standards of excellence. Investments must go beyond remuneration alone and include resources for improving workers' skill sets (Chen et al., 2024). One such remedy for sluggishness that may

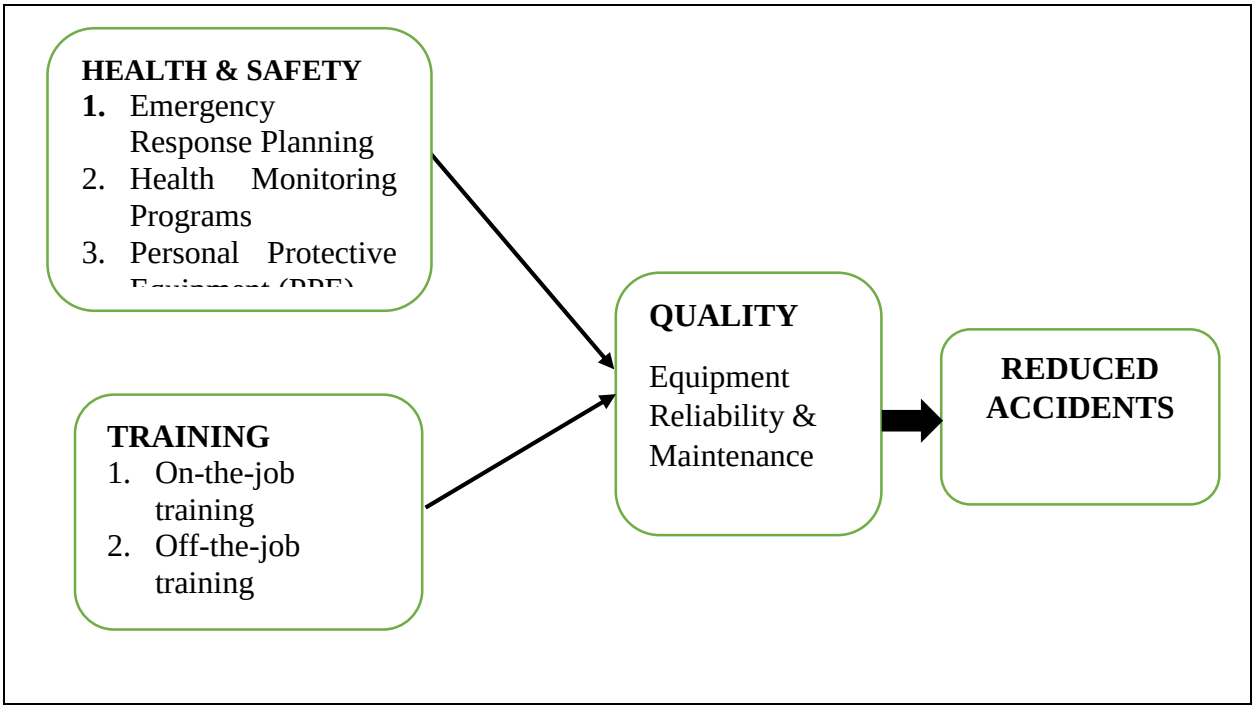
develop in organizations due to organizational inertia is training. Hieu (2020) reiterates the importance of knowledge and skill development for an organization's well-being. In the information era in which we all live, organizations are often valued for their intellectual as well as their physical capital. An organization's worth is influenced by the quality of its training since it is one of the primary strategies for preserving and enhancing intellectual capital (Huang et al., 2022). Therefore, it costs a lot more to assist staff who are unskilled or untrained than those who are well-trained. Training has an impact on employee retention and is a valuable commodity that may provide significant returns if considered as an investment rather than a cost, according to Ariza-Montes et al. (2020). Hence, training is an organizational endeavor that aims to assist staff members in gaining the fundamental abilities needed to carry out the tasks for which they were employed effectively. Development, on the other hand, focuses on actions made to expose workers to more responsibilities and to take on important roles within the organization (Basinska et al., 2019).

Training, according to Vincent (2020), is a systematic process by which individuals acquire information and/or skills for a specific or defined goal. Thus, the growth of knowledge and skills is essential to the well-being of organizations. As stated by De Carlo et al. (2020), training is a planned and systematic process that aims to alter workers' knowledge, skills, and behavior in order to accomplish company goals. Although its emphasis is much more narrowly centered than education or development and is work or task driven, it may also be thought of as the production of learning opportunities (Armstrong, 2021). Therefore, the primary goal of staff development is to provide opportunities and enable learning inside an organization. Development, however, should occur within the framework of corporate goals.

According to Duarte et al. (2021), training and development are often started for an individual or group of employees in order to stay in business, build a pool of qualified workers to replace departing staff, or advance in the organization. The company's ability to adopt and use technological advancements is also improved by employee training and development because it creates a more knowledgeable, effective, and highly motivated workforce, which boosts employee morale and the company's competitive position (Huang et al., 2021). Noting that training and development also guarantees sufficient human resources for growth into new programs is equally crucial.

2.2 CONCEPTUAL FRAMEWORK

Figure 2.1 The Conceptual framework guiding the study



Source: Researcher (2025)

2.2.1 Emergency Response Planning

Hao et al. (2024) consider that Mine Emergency Response Plan (MERP) identifies the steps that should be undertaken to enable a successful handling of an emergency situation within a reasonable time and being efficient. There should be good emergency response plans in mining companies that anticipate various risks such as cave in, explosion or fire. Chen et al. (2024) state that these measures are essential in ensuring operating continuity and safety of workers. Emergency exercises and training may prepare workers better to encounter unexpected events and act quickly and efficiently through drills and simulations. Mining companies can reduce their impact and the probability of mishaps occurring in case of a disaster by employing the best practices in the industry and continuously improving the response to the emergency (Wang et al., 2024). An emergency response is an immediate plan of action that occurs when something which

is either surprising or dangerous occurs. Aim of emergency response process is to mitigate the impact of the event on people, property as well as the environment.

Natural catastrophes, transportation accidents involving hazardous material causing spillages, and other disasters requiring some kind of response are in this category (Hao et al., 2024). The necessary document, which is an emergency response plan to ensure a successful, timely, and correct response to a dangerous situation. The type of activities that may be included in emergency response plan are sheltering in place, evacuations, placing a building under lockdown, administering first aid, and contacting first responders. In any emergency response, reaction time is vital as it can increase the number of deaths, damage that will take longer to be overcome as well as remain longer to cause more agony to the individuals being affected (Wang et al., 2024). As a result, the reaction time has become a proxy measure of overall efficiency of an emergency response program.

When disasters like mine fires, explosions, entrapments, or floods occur, Hao et al. (2024) claim that early intervention and planning may help save lives and save financial investments. Shi et al. (2024) points that a Mine Emergency Response Plan ensures that supervisory and other personnel are prepared to prevent and/or control an emergency by helping to determine the following:

- what actions can be taken to prevent an emergency;
- what precautions would minimize the effects of an emergency, should one occur;
- what immediate actions mine personnel should take to contain an emergency;
- whether mine employees have the skills necessary to carry out the procedures outlined within the MERP;
- who will assume temporary command of the emergency effort;
- who is in charge of which parts of the emergency operation;
- what kinds of special services and mutual aid support are available to sustain rescue actions;
- how key personnel will obtain information and assess reports to make critical decisions; and

- what media relations procedures are necessary in the event of an emergency.

As long as the MERP effectively handles the particular characteristics and needs of each mine site, Shi et al. (2024) contend that it may be used for either a single mine or a collection of mines. In its essence, emergency response protocols will help to react to emergencies in an efficient and timely manner, which will also help organize and prepare the personnel on the ground in terms of emergencies coming their way. develop a one-set set of emergency response guidelines to educate all emergency response practitioners, establish standards of early control and management of an emergency, and provide common guidelines on a routine basis to control procedures that govern the actions necessary to achieve an ordered response (Wang et al., 2024). In order to analyze the current state of preparedness of a company, regular reviews of a current MERP should be conducted to identify new or altered circumstances in addition to identifying the areas that require new levels of preparation. When it comes to MERP assessments, they can be performed on a level of a department, a mine, or even a group of mines, as it is suggested by Hao et al. (2024). After such assessments, the management can develop specific goals to improve the business disaster preparation program or change it according to emerging conditions.

2.2.2 Health Monitoring Programs

It is also essential to have health and safety monitoring within the mining industry to protect people and ensure efficiency (Wang et al., 2024). Mining conditions have a number of unique risks which could pose a threat on the health and safety of employees such as operating risks and airborne pollutants. The present article is a manual on the health and safety monitoring within the mining industry, which also contains some data on contemporary approaches, tools, and strategies that guarantee the safety and welfare of the workforce (Babyr, 2024). Workers should also be under consistent supervision of their physical health, in particular, the exposure to hazardous chemicals in order to detect any prospective health challenges at their initial stages (Wang et al., 2024). A complete health surveillance program involves frequent physical examination, pulmonary functional test, and work-related illness screening. These methods are also needed to identify

potential health challenges in workers so that the corrective measures can be taken in time to reduce adverse health outcomes.

The mining companies can adopt several ways to offer safety training to their workers (Babyr, 2024). Mining corporations have embarked on comprehensive safety training to prepare employees to face any form of hazards on the job. As mentioned by Wang et al. (2024), the general safety training can contribute to making workers aware of potential risks, ensuring they are informed on the safe operation of the machinery, teaching them the evacuation routes and communication procedures, and first aid, and enforcing them with information on the industry regulations and the specific ones in their companies. Moreover, effective safety training programs focus on avoiding accidents and responding to accidents effectively, and this is why training of workers is key in health and safety management.

2.2.3 Personal Protective Equipment (PPE)

Mathuloe et al. (2024) argue that the risk of injuries needs to be minimized with the help of the suitable PPE. PPE, such as respirator protection, gloves, helmets, and luminous apparel, should be also periodically checked and replaced to ensure that the employees are adequately safeguarded. Through such processes, the number of mining fatalities can be reduced and this can increase safety of the workers. According to Karchina et al. (2024), Personal Protective Equipment (PPE) consists of protective coverings of hands, respiratory, torso, feet, head, and eyes. It is used to protect individuals against the hazards of physical, chemical, biological threats, and as a basis to ensure people have their exposure to them minimized. PPE is the final resort whenever other administrative and engineering control methods fail to mitigate or eradicate the risks occurring.

The Personal Protective Equipment (PPE) safety entails the application of PPE in ensuring a safe working environment between workers and guests. All the companies of any industry need to focus on ensuring safety (Karchina et al., 2024). PPEs should be applied with the help of such assessments as health and safety risk assessment, reviews such as workplace and restaurant inspection, and analysis such as gap analysis to ensure that workers are not exposed to risks and hazards. Mathuloe et al. (2024) recommend PPE, also referred to as PPE equipment, as an ultimate preventive measure against occupational harms, diseases, and deaths. Nevertheless, other

companies integrate PPE with other control tools so as to safeguard the health and safety of their employees.

Figure 2.2: Basic PPE that can help protect employees

Source: *https://safetyculture.com/topics/ppe-safety*

2.2.4 On-the-job training

On-the-job training (OJT) is the practical approach to learning new competencies and skills needed to perform a job in a real or nearly reality working situation (Molek-Winiarska & Kawka, 2024). Training, simulation, or live-work scenarios are also prevalent, through which the patterns of using some tools or equipment are taught (Karchina et al., 2024). To enable the miners to learn the potential hazards that accompanies their jobs and the precautionary measures employed to mitigate them, proper training is necessary (Kwesi et al., 2024). Regular training tasks should be conducted on a vast scope of topics, including identification of danger, working with the equipment, and responding to emergency situations. According to Shimaponda-Nawa and Nwaila (2024), such training programs should aim at equipping miners with the required information and skills enabling them to identify potential risks and promptly respond to such an occurrence in the event of an

emergency. Frequent training sessions will also enable companies to ensure that miners are competent and prepared to address the associated challenges of the required practice in a secure and successful manner. On-the-job training (OJT) programs are used to build your talents so that you are prepared to take the job. Recent graduates need job experience, and it is achieved through OJT programs. OJT is not just that, though.

On-the-job training program is more or less a bridge between industry and scholar. Shimaponda-Nawa and Nwaila (2024) note that theory and practice are not always correlated as such, thus the two spheres operate on the different levels. OJT could be useful at almost all levels of subjects and degrees. In whatever degree you are getting, be it an administrative associates degree, fashion bachelors degree, or data science masters degree, getting an OJT is the key to your career.

2.2.5 Off the job training

The mining sector has been using technology more and more to improve worker safety (Shimaponda-Nawa & Nwaila, 2024). For example, remote-controlled equipment and automation have become important ways to reduce the amount of time that employees are exposed to dangerous conditions. Drones and sensors have also been shown to be useful instruments for delivering up-to-date information about mining conditions. The industry's pursuit of safer working conditions seems to have a bright future thanks to these technologies' capacity to monitor and analyze the environment (Bendaouia et al., 2024). Off-the-job training is a term used to describe learning that occurs outside of an individual's usual working hours. Beyond the office, workers gain knowledge about their work or the most recent developments in their industry. For the most part, this kind of training makes workers more productive. Off-the-job training, as contrast to on-the-job training, might occur in a training facility or a resort, or it can occur closer to the workplace (Bendaouia et al., 2024). Employers may reduce distractions and enable workers to concentrate entirely on the training they are receiving by holding it off-site. During this kind of training, staff members share their thoughts and opinions and consider fresh concepts to use in the workplace. Employees usually get an assessment of some kind prior to the training's finish (Shimaponda-Nawa & Nwaila, 2024). An assessment that assesses their comprehension of the material presented by the teacher during the off-the-job training, for instance, may be given to them. Each trainee's involvement and performance are measured by the assessment.

Off-the-job training comes in a variety of formats, often based on your work or sector. Understanding the components of each approach will help you better anticipate what to expect. Also referred to as the lecture technique, classroom lectures are frequently used to teach management-level or white-collar workers (Chikove, 2023). During this kind of off-the-job training, a trainer gives lectures and the sessions are held in a classroom ambiance. According to Bendaouia et al. (2024), trainees get the chance to ask questions of specialists, gain important skills necessary for their employment, and become familiar with their professional obligations. Lectures in the classroom may also alert trainees to specific processes, educate them about a particular topic, or teach them the administrative or managerial facets of their work. According to Maqbool et al. (2024), trainees who get off-the-job training using an audio-visual technique acquire the information via a variety of media, including presentations, television, movies, and videos. To aid pupils in remembering the content more readily, educational institutions often use this technique. This kind of training is often given to workers by customer service center employers in the business sector to educate them how to communicate and conduct themselves with consumers.

2.2.6 Quality

2.2.6.1 Equipment Reliability and Maintenance

It emphasizes on worker safety, equipment dependability, and productivity and is a crucial component of Total Productive Maintenance (TPM). Reducing downtime, improving equipment dependability, improving process quality, and eliminating losses are the primary goals of quality maintenance (Yildiz et al., 2024). Implementing proactive maintenance programs, such as predictive and preventive maintenance, monitoring equipment health using condition monitoring technologies (e.g., vibration analysis, thermography) (Teye et al., 2024), training maintenance staff on equipment troubleshooting and repair, and setting up spare parts management systems to minimize downtime are some ways to address equipment breakdowns and downtime that disrupt mining operations and productivity (Yildiz et al., 2024). The upkeep of production processes and facility equipment has a closer relationship with product quality than most managers realize. A company's maintenance expense might be much outweighed by the possible financial advantages from raising the quality of its products (Faisal Anwar et al., 2024). Production losses like waste, rejections, and poor quality have a direct effect on a company's profitability. The

dependability of facilities and manufacturing equipment, raw materials (substandard material), transportation and storage, human factors (operator mistakes), and sampling and quality measurement are some of the elements that might affect a product's quality (Teye et al., 2024). From a maintenance and quality standpoint, the emphasis here is on equipment dependability and how it affects corporate profitability.

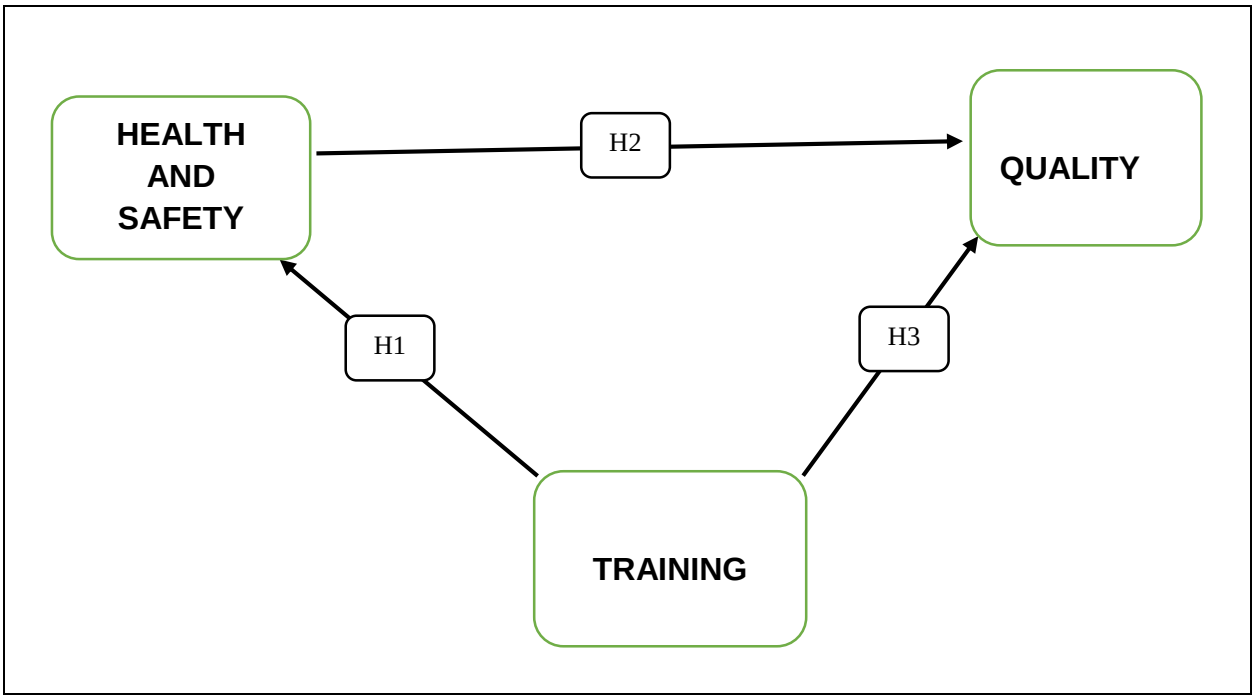
2.2.7 Accident reduction

On building sites, accidents may be avoided with routine equipment maintenance. It is frequently overlooked how important the link is between routine equipment maintenance and construction site safety (Yuxin et al., 2024). While it's typical to concentrate on immediate threats like electric shocks or falls, badly maintained gear might provide an equally significant risk. From small interruptions to catastrophic mishaps, equipment failures may cause a variety of problems (Amirudin et al., 2024). Therefore, the foundation of your whole safety strategy should be a proactive commitment to care.

In simple terms, it is one sure way of getting yourself in trouble in case you treat maintenance as an optional task. A well-kept machine and equipment will have fewer chances of breaking down hence reducing chances of accidents that might harm your employees and setback your project. Also, a regular equipment check can help you notice little defects before they can turn into big ones so that you can correct them in time and at a low cost (Yuxin et al., 2024).

Basically, regular equipment maintenance is also an investment into safety and wellbeing of all people at the building site as it is not limited to the maintenance of the equipment in order to help it continue functioning. It is the process of setting a working environment whereby the employees would work out their duties with the assurance that their machines will not break down and where the probability of accidents happening is lessened.

2.3 HYPOTHESIS DEVELOPMENT



Source: Researcher (2025)

2.3.1 Training is positively associated with Health and safety.

The importance of training as a component of occupational health and safety (OHS) programs is confirmed by Bajracharya et al. (2023). Health and safety training is a collection of protocols, lessons, and techniques intended to provide workers the information and abilities they need to carry out their jobs safely and uphold a secure workplace (Omolara & Ochieng, 2024). Therefore, it is essential to remember that training strives to lower workplace diseases and accidents while ensuring that employees can carry out their jobs safely and efficiently. Vincoli (2024) asserts that training makes it possible to inform staff members about risks. This entails educating workers on the possible risks present at work. This might include physical risks like equipment or dangerous materials, as well as problems like ergonomic risks or stress at work (Molek-Winiarska & Kawka, 2024).

Training also makes safe processes and practices possible. To manage a variety of activities in the workplace, employees are instructed in the appropriate protocols and practices (Baghaei Naeini & Badri, 2024). Maintaining appropriate ergonomics, managing dangerous products, and operating equipment properly are a few examples of this. At its core, emergency response training usually covers what to do (Alsharif et al., 2024). Procedures for evacuation, first aid, and the usage of fire

safety equipment may be covered. Employees often get training on how to recognize possible hazards at work and take precautions against them.
In a study on the use of wearable technology to enhance workplace health and safety, Aksüt, Tamer, and Alakaş (2024) discovered that health and safety training frequently includes educating staff members about their rights regarding health and safety as well as the rules and laws that their employer must follow. In order to ensure that safety and health are the top priorities in all work operations, Shimaponda-Nawa & Nwaila (2024) claim that health and safety training attempts to foster a safety-conscious culture inside the workplace. Many countries have laws requiring this training, which is crucial for lowering the number of accidents and illnesses (Mvile & Bishoge, 2024).

In their study on safety culture: a retrospective analysis of occupational health and safety mining reports, Tetzlaff et al. (2021) contend that health and safety training is crucial in any workplace or setting because it preserves a safe working environment, protects employee well-being, and prevents accidents.

Health and safety training's primary goal is to avoid workplace accidents and health problems associated with the job (Vincoli, 2024). Workers who are knowledgeable about safety regulations and risk management techniques are far less likely to be involved in mishaps or become sick from their jobs. Because they are aware of the risks that come with their jobs and know how to reduce them, everyone works in a safer environment. According to Nemetz et al. (2022), health and safety training fosters a culture of ongoing education and development. This suggests that workers need to upgrade their knowledge and abilities on a frequent basis due to the evolving nature of the workplace, new industry standards, and developing technology.

Based on the given reviewed literature, the following hypotheses were proffered:

H1: Training is positively associated with Health and safety.

2.3.2 Health and safety is positively associated with Quality.

Chen et al. (2021) confirm that there are inherent dangers and potentially hazardous work environments in the mining sector. Creating a strong culture of safety is essential. It guarantees both operational performance and worker safety. Beyond just adhering to regulations, safety culture is a way of thinking that puts safety first. However, a variety of quality issues that might impact safety are brought about by the nature of mining activities (Tetzlaff et al., 2021). According to Bajracharya et al. (2023), machine quality affects both safety and health. These specifications need to be included in the current safety guidelines. However, according to Marimuthu et al. (2021), workers are required to use reasonable caution for both their own and others' safety. A written declaration describing the employer's safety policy must be made public by management, and provisions are in place for the nomination of safety representatives and safety committees from within the workforce to aid the process (Alsharif et al., 2024).

According to Deshpande & Srivastava (2023), work-related illnesses and injuries provide a significant and expensive obstacle for governments, unions, management, and most importantly, employees themselves. As Steenkamp and Van Schoor (2002) correctly point out, occupational health and safety is a complicated global issue that management and society must treat with the utmost importance. Because catastrophes transcend national boundaries and nationalities and little errors may have significant consequences, countries should work together to advance occupational health and safety in order to achieve the shared objective of universal protection, preventive, and fast warning systems (Bajracharya et al., 2023).

According to Mohsin et al. (2021), a culture of excellence is developed because staff members are able to perform effectively in a safe and healthy atmosphere. Omolara and Ochieng (2024) state that the goal of management to control production costs may clash with health and safety measures that shield workers from workplace dangers. In order to contribute to the accomplishment of organizational objectives, workers must be in a safe and healthy work environment (Deshpande & Srivastava, 2023). Because it has a significant influence on the company's reputation, maintaining health and safety at work is thus crucial.

Based on the given reviewed literature, the following hypotheses is proffered:

H2: Health and safety is positively associated with Quality.

2.3.3 Training is positively associated with Quality.

MacMahon and associates (2024). Confirm that staff development and training increases work satisfaction to a larger degree (Su et al., 2022). This suggests that staff development and training are seen as essential components in organizations for raising employee commitment. As a result of the technology age and the onset of globalization, it is evident that organizations should prioritize worker training (Smee et al., 2024). The findings of a research by Yura & Andryei (2022) showed that training assistance and motivation have an impact on work satisfaction, which in turn raises output quality. The findings highlight the value of training in organizations since it encourages workers to be dedicated to completing their work effectively.

Training aids people in gaining the abilities required for their professional competences, according to Tua et al. (2022). It should thus be given on a regular basis in a scheduled way. In this sense, managers are advised to create an appropriate system for training and development that evaluates their requirements and then provides for them appropriately. When workers get such training, it fosters a feeling of connection and concern between employers and employees, which increases employees' dedication to the company (Vavenkov, 2022).

Based on the given reviewed literature, the following hypotheses is proffered:

H3: Training is positively associated with Quality.

2.4 Empirical studies

2.4.1 Yang et al. (2021).

A research on the use of information technology in coal mining and the safety of mining workers was carried out in China by Yang et al. in 2021. In addition to examining the effects of technology on coal mining, this research aimed to thoroughly analyze the reasons for safety and environmental problems in the coal mining sector. The findings showed that general safety concerns, environmental variables, and mining information technology were the three primary elements that were discovered and categorized as having an influence on safety in coal mining. Coal mines have

recently been automated and mechanized, which has increased cost, production, and safety. Nonetheless, the primary causes of coal mining injuries were human factors, including inadequate training, inexperience, dangerous habits, and a lack of a thorough emergency rescue plan. Additionally, compared to operating sites, abandoned mining sites emit more carbon dioxide.

2.4.2 Tetzlaff et al. (2021).

In their research on safety culture, Tetzlaff et al. (2021) retrospectively analyzed reports on safety mining and occupational health. In order to examine how safety culture has historically been presented in the mining sector in relation to accident causation, the research aimed to analyze occupational health and safety (OHS) reports in mining. The findings showed that the data collection had 954 references overall, along with six themes: safety culture, attitude, competence, belief, patterns, and norms. The text included 24 of the 26 important phrases that were first identified. The findings demonstrated that there are two different frameworks for interpreting the data: the individual's and the organization's roles in safety culture. The same incidents are likely to keep happening unless efforts are taken to identify and change cultural causes and communicate these results both within and across businesses, it was concluded.

2.4.3 Joshi et al. (2021).

A research on the use of virtual reality technology for safety training in the precast and prestressed concrete industries was carried out by Joshi et al. in 2021. According to the findings, the VR module that was created is an easy-to-use simulator that causes less simulation sickness. Over half of the participants said they didn't experience any symptoms of simulation sickness. Additionally, a comparison between this VR training approach and the conventional video-based teaching method was used to conduct an efficacy analysis. According to this investigation, VR training increases engagement and offers a better comprehension of safety procedures and the actual experience of a precast or prestressed concrete plant.

2.4.4 Mohsin et al. (2021)

In their paper "Mining industry impact on environmental sustainability, economic growth, social interaction, and public health: an application of semi-quantitative mathematical approach," Mohsin et al. (2021) reported their findings. In Pakistan, the research was carried out. Sindh Engro coal mining may not be environmentally viable, according to the study's conclusions. When operations are underway, the harmful gases—such as carbon dioxide, sulfur, and methane—are emitted. Thar coal mining has a detrimental impact on the four major environmental spheres: the hydrosphere, biosphere, lithosphere, and atmosphere. The second section of the analysis's findings demonstrates that, with the exception of human health and safety, human needs and interests have a positive and substantial association with Sindh Engro coal mining. Environmentally friendly coal mining methods and technologies may be used to reduce pollution in the environment. Plantations and ecological normalization may help preserve the Thar Desert's wildlife, plants, and species. The Sindi province administration and the Pakistani government should closely monitor the adoption of environmental regulations.

2.5 Research gap

The researcher aimed to create a structural model on the connection between training, quality, health, and safety at Mitchell Drilling International because these researchers (Yang et al., 2021; Tetzlaff et al., 2021; Joshi et al., 2021; Mohsin et al., 2021) concentrated on other topics and in different parts of the world. Therefore, this research is the first to provide managers of mining and drilling firms with information on how to reduce accidents in the industry by implementing training, a quality culture, and health and safety measures. As the empirical research have shown, this field has not been explored.

2.6 Chapter summary

In this chapter, the components employed to create an explanatory structural model in the mining industry—training, quality, and health and safety—have been critically examined. Using the constructions as a guide, the researcher also constructed the hypothesis. The researcher will go over the study methods in the next chapter.

CHAPTER 3

METHODOLOGY

3.0 Introduction

This chapter aims to provide an overview of the procedures and strategies used to collect and compile the information that will help the researcher create a structural model of the link between Mitchell Drilling International's training, quality, health, and safety. It describes the target population, sample size, sampling strategy, data collecting methods and instruments, data presentation and statistical analysis, and ethical issues that the researcher took into account while conducting the study.

3.1 Research paradigm

3.1.1 Positivism

Using Mitchell Drilling International (MDI) as a case study, this study will use positivism as its research methodology in order to create a structural model of the link between training, quality, and health and safety in the mining sector. Positive research philosophy, according to Finn et al. (2022), emphasizes the application of scientific methodologies to the study of the social environment. Thus, the foundation of positivism is the belief that only information derived from measurement and observation is reliable. According to Habu & Henderson (2023), positivism uses the hypothetico-deductive method to generate functional relationships between outcomes (dependent variables) and explanatory and causal factors (Horton et al., 2022) (independent variables) in order to validate a priori hypotheses that are frequently expressed quantitatively. According to Marshall et al. (2021), one of the main objectives of positivist research is to produce explanatory linkages or causal links that eventually result in the prediction and control of the phenomenon under investigation. Positivists believe that knowledge can and should be produced objectively, apart from the participants' or researchers' personal beliefs. According to Das (2022), knowledge is truth when it is properly developed; that is, it is accurate, definite, and consistent

with reality. There must be complete separation between the researcher and the study participant in order to establish truth in an acceptable manner. Positivism uses dualism and objectivity to accomplish this separation (Amini et al., 2022). Stated differently, positivist theory maintains that participants and researchers may be distinguished from one another (dualism). Furthermore, in order to minimize bias in the research (objectivity), the two entities are kept apart by rigorous methods (Heeks, Wall & Graham, 2025). Due to its heavy reliance on objectivity, positivism downplays the significance of people's subjective experiences and values, whether they be those of researchers or study participants (Marshal et al., 2023). Positivism views these subjective perceptions and values as irrelevant.

3.1.1.1 Justification of positivism research paradigm

In positivism, the research issue is considered more important than the technique or paradigm that underpins it (Sabri, 2025). Setting hypotheses, testing them empirically, measuring the outcomes via in-depth analysis, and finally being able to codify the findings into a set of rules and predictions are all rigorous processes (Hunziker & Blankenagel, 2024). Because of its more "scientific" methodology, quantitative research is more reliable than qualitative research. Consequently, this will undoubtedly provide a picture (concept) of why contingent information is considered not just binding but also essential to the researchers (Marshal et al., 2021). Moreover, positivism adheres to a clear framework in research and discourse. Because there are established laws and regulations that must be obeyed, positivists think that there will be little opportunity for mistake (Hyun et al., 2022). Additionally, this framework allows for little volatility and significant changes in variables, which improves the study's accuracy in experiments and applications by attempting to adhere to certain guidelines utilizing impartial scientific and mathematical instruments. This suggests that, in essence, information was obtained from mining industry workers via opinion polls.

3.3 Research Approach

The set of strategies and processes that determine the general course of the research process is known as the research strategy, according to Marshal et al. (2021). As a result, it is predicated on the characteristics of the research topic and question. According to Horton et al. (2022), it comprises a collection of presumptions, convictions, and principles that direct the investigator. Additionally, it determines the procedures for gathering, analyzing, and interpreting data.

According to this, a research approach is a strategy and process consisting of both general assumptions and specific techniques for gathering, analyzing, and interpreting data. Furthermore, Rauteda (2025) distinguished between two primary research methodologies: the qualitative approach and the quantitative approach. As a result, it can be acknowledged that the quantitative method is often linked to the positivist paradigm (Pandey & Pandey, 2021) and entails gathering and transforming data into numerical form so that statistical computations may be used for analysis.

3.2.1 Quantitative Approach.

The use of quantitative research methodology is essential to this investigation. According to Golzar, Noor, and Tajik (2022), a quantitative research technique is a statistical and/or numerical approach to the study design. This suggests that the data may be interpreted by presenting the information obtained from participant surveys in the form of graphs and charts. According to Evan (2020), research design refers to the well-defined frameworks that the study is conducted under. According to this, a research design is a strategy that the researcher should aim to follow in order to gather answers to the many issues that the research topic would have brought up. A research design, according to a variety of authors including Mishra & Alok (2022), serves as a blueprint or a strategy that serves as the foundation for the whole investigation. In essence, as noted by Pandey & Pandey (2021), the research design establishes the framework for the whole study. We thoroughly examine the qualitative, quantitative, and mixed methodologies research designs to support their applicability to this specific topic. This is only because Dawadi, Shrestha, and Giri (2021) note that a research might utilize any of the two methodologies—qualitative or quantitative—or both methods in full. A research design is a plan for carrying out a study with the greatest amount of control over variables that might compromise the validity of the results, claim Busetto et al. (2020). The quantitative research technique will be used in this study in light of the previously provided information.

3.2.1.1 Justification of Quantitative Approach.

The quantitative method is a potent instrument for anybody wishing to collect empirical data on their subject of research, according to Habu & Henderson (2023). Consequently, standardizing

data collection and processing using a quantitative method facilitates cross-study comparison of findings. According to Mdikana and Hove (2025), the research may be repeated because of the uniform data collecting procedures and concrete descriptions of abstract notions. In essence, quantitative research makes it possible to develop a broad knowledge of behavior and other phenomena across many populations and environments (Mishra & Alok, 2022). possessing speed, concentration, science, and relatability. Compared to other types of study, quantitative research can collect enormous volumes of data much more quickly. Quantitative research is focused on facts and verified information, according to Sabri (2025). Participants in quantitative research do not need to be named or recognized, in contrast to qualitative research questions (Mdikana & Hove, 2025). Since quantitative research aims to expand on existing theories, it is very particular in its surveying and experimenting. This implies that by dissecting the objective data gathered from Mitchell Drilling International workers' surveys, meaning may be derived from quantitative research. Because of the many advantages mentioned above, the quantitative research technique was used for this study.

3.3 Research design

According to Das (2022), a study is considered legitimate if its findings are truthful or correct, and its research design is the theoretical framework that guides its execution. As the "glue" that binds all the components of a research project together, research design may be thought of as the framework for the study; in other words, it is a strategy for the planned research project (Andrade, 2021). As a result, study design not only foresees and outlines the apparently endless choices related to conducting data collection, processing, and analysis, but it also provides a rationale for these choices. To put it another way, the research design is the framework that guides the study and should essentially be considered while taking into account crucial ideas like data collecting, measurement, and analysis. According to Dawadi et al. (2021), a research design is a strategy or blueprint that is especially made to address the research topic and manage variation. " The main goal of every research is to either test the research hypothesis or provide an answer to the research question. In order to characterize preferences, behaviors, traits, similarities, or differences, this study strategy gathers data from a subset of the target group. A survey's advantages include its ability to collect data from a large number of people on a small number of variables and its versatility in covering a wide range of subjects and demographics.

3.3.1 Explanatory – Case Study Research Design

The researcher used an explanatory-case study research strategy in this investigation. A research approach that focuses on providing an explanation for a phenomena or a subject is known as an explanatory case study (Hunziker & Blankenagel, 2024). It looks for elements that affect choices, such as the reasons for decisions, their implementation, and the outcomes. According to Marshall et al. (2021), a case study is also defined as a thorough, methodical examination of a single person, group, community, or other unit in which the researcher looks closely at data pertaining to a number of factors. Therefore, case studies look at complicated phenomena in their natural environment to learn more about them. Explanatory case study techniques include literature research, case analysis research, in-depth examination of each issue, and focus group research (Hunziker & Blankenagel, 2024). Usually, an explanatory-case study design is used to gather and analyze data in order to understand and explain quantitative findings. It may be particularly helpful when a quantitative investigation yields unexpected findings (Barroga & Matanguihan, 2020). This suggests that the "thick" description of events and "holistic" analysis are appropriately associated with this study approach. However, an explanatory-case study research design is essentially a comprehensive investigation of an individual, a group of individuals, or a unit with the goal of generalizing across several units, according to Poth & Munce (2020).

3.3.1.1 Justification of Explanatory Case Study Research Design

This study approach is quite useful in determining how to effectively address and achieve a specialized aim, according to Evan (2020). It also forces researchers to investigate how and why events occur. Among this design's primary advantages is its simplicity. It makes a researcher's comprehension of a certain topic possible (Kamper, 2020). It also results in more accurate findings. Thus, having a thorough grasp of the topic might help the research refine future questions and significantly improve the utility of study findings. Due to the fact that case studies examine data that was created in real time, they provide facts for examination. With a documented route of good or negative growth, it allows researchers to transform their thoughts into knowledge that can be confirmed as reality (Rauteda, 2025). An outside observer will find it more credible when a single

episode is highlighted since it offers detailed information about the development's course. Because the processes are divided into distinct, easily implementable phases, it is simple to do so. A single-case study is justified if a researcher want to examine a particular phenomena resulting from a singular entity, according to Barroga & Matanguihan (2020). This will provide a thorough comprehension of the single phenomenon. At Mitchell Drilling International, the researcher aims to create a structural model of the interaction between quality, safety, training, and health.

3.4 Target population

The Mitchell Drilling International demographic used as the model for the target population. Everyone who works for the international behemoth will be the focus, including managers, section managers, department heads, engineers, health and safety officials, and regular staff members. The target population is defined by Munce et al. (2021) as the persons on whom the researcher would concentrate due to the characteristics that will be of interest to him or her. That is, the total number of individuals or groups of persons that a researcher may look into. Five hundred Mitchell Drilling International personnel made up the target population for this study.

3.5 Sample size

The five hundred workers of Mitchell Drilling International served as the population from which the sample for this study was drawn. The process of selecting a subset of the whole population that satisfies a predetermined set of criteria under investigation is what Rauteda (2025) believes sampling comprises. When a portion of the population is selected to take part in a research, it is called a sample. Thus, a sample is a subset of the whole population. Shao et al. (2025) contend that sampling is defined as selecting a subset of elements from a limited population using an acceptable technique such that the sample elements accurately reflect the population features. It is assumed that the findings will be legitimate and trustworthy, and the sample is thought to be sufficiently representative for the research.

3.6 Sampling technique

3.6.1 Convenience sampling

Convenience sampling is a non-probability sample technique used in research where participants are chosen depending on their availability (Shao et al., 2025). This approach was applied in this study. A common non-probability sampling technique in clinical and qualitative research is convenience sampling. This sample method often chooses clinical cases or participants who are accessible in the area (e.g., hospital), online, in a customer membership list, or in a medical records database (Emerson, 2021). The motive of study participants determines whether convenience sampling is used in qualitative studies. As stated by Golzar et al. (2022), a person's motivation to engage may be influenced by their interest in the study issue, their want to voice a dissatisfied viewpoint, or their desire to bolster individual beliefs. When the researcher is short on time and resources, this approach is often used to gather data (Hajesmaeel-Gohari & Bahaadinbeigy, 2021). Because they are the most accessible to the researcher—for example, local, available, or eager to engage in the study—the participants are chosen to be included in the sample.

3.6.1.1 Justification of convenience sampling

The benefits of convenience sampling in research are many. Initially, this approach is economical for the majority of people (Dawadi et al, 2021). As a result, convenience sampling is a cost-effective method of learning. Initiating a convenience sampling endeavor requires little effort. A survey may be posted on a social media website, questions can be posed in public, or a poll with online voting is available (Marshal et al., 2021). As a result, it is among the least expensive methods of obtaining information available today. Pilot testing is another use for it. According to Munce et al. (2021), convenience sampling is the most practical choice for pilot testing. Some participants, educators, or researchers may call it chance, grab, or unintentional sampling. Data collected using this strategy is gathered from the most accessible individuals. If you have ever been approached by someone to do a survey while you are shopping at a mall, it was an example of convenience sampling (Kothari, 2018). Thirdly, the method's simplicity makes it the preferable choice as well. Compared to other sample techniques, convenience sampling is less complicated and time-consuming (Agbali et al., 2021). Fourthly, this approach may be used as a remedial measure for discontent. According to Hossan et al. (2023), convenience samples are a great

approach to step in when a customer's experience with a business was not good. People are reluctant to address bad service face-to-face, but they will often fill out a survey or answer questions related to a bad encounter. One way to transform negative energy into more positive energy is to maintain anonymity while offering a potential reward, such as a drawing for a gift card (Hajesmaeel-Gohari & Bahaadinbeigy, 2021). Finally, convenience sampling provides an avenue to get targeted input from particular viewpoints. Conveniently, the volunteers served as research samples.

3.7 Research instruments

According to Hossan et al. (2023), these are tools which are used to gather information. The researcher used two data collection techniques: questionnaires and interviews.

3.7.1 Questionnaire

According to Andrade (2021), a questionnaire is a series of questions that have been designed, formed, and arranged in the most efficient way possible. An inventory of pre-formulated questions makes up a questionnaire. To get the same data from each sample member, questionnaire researchers often ask the same questions of respondents in the same sequence (Evan, 2020). Participants were given self-administered questionnaires in person, and they were subsequently collected. As a result of his ability to follow up with each participant and distribute surveys, the researcher will be able to get a high response rate. We'll employ closed or fixed choice questions, which ask you to choose from a list of predetermined responses. Because they provide answers that are easier to categorize and measure, closed-ended questions were used. They also utilized open-ended inquiries. These were useful in obtaining information that the responder was able to clearly explain.

When creating the questionnaire, the Likert scale was used. The researcher used a Likert scale to gauge respondents' attitudes. As a psychometric, one-dimensional scale that is often used to gauge respondents' attitudes in questionnaires and survey research, Kumar (2019) developed the Likert scale. Developed by Likert, this concept measures attitudes by asking a large number of individuals to rate how much they agree or disagree with a series of statements about a subject. The total of answers to many Likert questions, usually four to seven, makes up the Likert scale. The rating system employed in this study was an odd-numbered scale with five points for strongly

agreeing, four for agreeing, three for neutral, two for disagreeing, and one for severely disagreeing. Because it was beneficial to the research, the Likert scale was used. Instead of anticipating a straightforward affirmative or negative response, respondents are free to express varying degrees of opinion or perhaps none at all (Roy, 2020). Because every item has the same value, replies are scored instead of itemized. Since quantitative data can be easily analyzed, it is simple to interpret and fulfill (Andrade, 2021). Therefore, it may be said that Likert scales are excellent for more nuancedly capturing respondents' disagreement or sentiments about the issue since they provide them a variety of potential responses.

3.7.2 Justification of questionnaires

Questionnaires are a potentially fast, inexpensive, and simple way to collect data. By using questionnaires, the researcher may get information from a large number of respondents in a short amount of time. Answers to the questionnaire may be provided whenever it is most convenient for the responder. According to Muzari, Shava, and Shonhiwa (2022), questionnaires get a high response rate since they allow the researcher to follow up with each person for whom they were administered. Comparing questionnaires given via interviews to certain participant observation studies, the former require minimal participation, risk, or sacrifice from the researcher. Quantification of questionnaire research findings is generally simple, and computer-assisted data analysis is rapid and effective. The link between several factors may be investigated with the use of computers.

3.8 Structure of the Questionnaire

During the study's early phase, questionnaires are a crucial tool for gathering information. According to Bangu et al. (2023), a questionnaire is a research tool that asks a series of questions to be answered by participants in order to gather data from them. Respondents in a stratum were asked the same questions in the same sequence in order to gather evidence from every member of the section. A and B were portions of the questionnaire. Multiple-choice, closed-ended questions on demographic characteristics were included in Section A. Closed-ended, five-point Likert scale questions (1–5) making up Sections B–D were part of the research that aims to create an explanatory structural model of work satisfaction in the mining industry in Zimbabwe. Das (2022) contends that a questionnaire's outcome might be influenced by its design, specifically the sequence in which the questions are asked. It is typical practice to arrange questions on certain

subjects and begin surveys with straightforward, unthreatening closed questions. The study's primary research tool was a structured questionnaire, with questions created on a 5-point Likert scale. According to academics like Newman et al. (2021), the 5-point Likert scale was suggested due to its ease of statistical analysis. The following parts were included in the questionnaire: Section A dealt with the respondents' demographic information, whereas Sections B, C, and D addressed training, health and safety, and quality, respectively. Based on empirical literature, the measuring items were created (Dawadi et al, 2021).

3.9 Data Collection procedures

Two hundred fifty responders at Mitchell Drilling International were given the questionnaires. According to Leedy & Ormrod (2014:222), "If the population size is around 500 (give or take 100), 50% should be sampled." This is how they calculated the total number of participants. In this sense, half of the 500 workers in the population were easily selected to participate in the research. In order to prevent them from discussing and influencing one another's answers, the researcher kept an eye on the respondents while they filled out the questionnaires. It was emphasized how important it is to respond to inquiries on your own. The respondents were told not to put their names on the questionnaires in order to increase the respondents' flexibility of answer. To increase the likelihood of obtaining them all, the researcher gathered them shortly after completion.

3.10 Pilot testing

A pilot study, according to Beraha (2025), is a trial run or scaled-down version of the main research. Pilot studies serve a variety of purposes. It allowed the researcher to evaluate the suitability and usefulness of the data gathering tools, which was crucial in determining the viability of the intended study. Consequently, it aided in improving the questionnaire timetable. The claim that making the required adjustments to data collecting techniques would guarantee more effective analysis of the data in the primary research is crucial to bear in mind (Marshal et al., 2021). The researcher was able to confirm if the questionnaires are gathering the data it is supposed to by doing pilot testing. By carefully reviewing the questions, the researcher accomplished this on a comparable target population. Where required, adjustments were made to enhance the tool's validity and dependability, which in turn improved the data gathered. Thus, pilot testing allowed

the researcher to evaluate the suitability and usefulness of data collecting tools and, more importantly, helped determine if the intended study was feasible.

3.11 Data analysis procedures

The statistical model IBM SPSS was used to analyze the data. This is due to its ease of use and capacity to manage a lot of data. Information may be easily retrieved and analyzed using a computer. The information was presented using descriptive statistics. Chirkov (2024) defines descriptive statistics as the use of tabulation and visual representations to arrange and summarize data, as well as the computation of descriptive measures.

3.12 Research ethics

These are the accepted standards of good and wrong within a certain group, like market researchers. According to Beraha (2025), these values required the researcher to respect the participants' rights to privacy, decency, and sensitivity. The researcher took into account important ethical issues, such as obtaining access, informed permission, participant protection from physical, psychological, or social damage, and the right to privacy.

The researcher obtained access by entering a scenario or environment in order to conduct the study. Additionally, the researcher obtained management approval prior to requesting information. Furthermore, before announcing the goal of the study, the researcher introduced himself. Participants were also given the chance to ask questions about anything that worried them. Additionally, the researcher will explain to participants that there are no negative repercussions for declining to participate. Additionally, participants were told that they might leave the study at any moment and that participation is entirely optional (Evan, 2020). Both orally and in writing, participants were assured that their right to anonymity would be completely upheld. At the beginning, the researcher will also reassure them that any information they consider private would be handled accordingly. They also received assurances that, even after study was completed, all research materials would be retained securely. Respect for the participants will be shown when the study comes to an end.

3.13 Validity and Reliability (Internal & External)

The validity and dependability of the tools to be used for gathering data were major concerns for the researcher. To ensure that the equipment generate correct and dependable data, efforts were done. Validity is the state in which an instrument accurately and appropriately measures what it is supposed to measure. How free from bias and mistake a metric is is known as its reliability. The researcher verified that all questions were answered on the questionnaires to lower the sampling risk and guarantee the authenticity of the data.

Additionally, the surveys were sent to the respondents on schedule, allowing them enough time to complete them. The researcher also made sure the questions were as explicit as possible to prevent scenarios where the responder would not answer any of them. In order to provide accurate and trustworthy data, the researcher also used pilot testing. Pilot testing, thus, allowed the researcher to evaluate the suitability and practicality of data collecting tools and, more importantly, helped determine if the intended study was feasible. Therefore, the questions and the interview schedule were improved with the help of pilot testing.

3.14 Chapter Summary

In conclusion, the third chapter examined the study strategy and the tools used to gather the data. Surveys and interviews are among the tools utilized. This chapter also described the process for presenting and analyzing the data as well as the ethical concern. Prior to the analysis and discussion of the findings in the following chapter, the data is presented in the next chapter.

CHAPTER 4

RESULTS

4.0 Introduction

This chapter focuses on the comprehensive examination, evaluation, and display of the collected data. Statistical tools, including Microsoft Excel, SPSS, and SmartPLS, was used to examine and analyze the questionnaire replies in order to achieve this goal. The results were then precisely presented in the form of tables and figures, which improved their readability and clarity.

4.1 Response rate

Engaging with the 250 workers of Mitchell Drilling International (MDI) was the main goal of the study. Both manual and computerized surveys were used to accomplish this. Response rate percentages in Table 4.1, however, show that the total number of completed and returned questionnaires was limited to 250.

Table 4.1: Response rate

Instrument	Distributed	Returned	Response rate (%)
Questionnaire	250	250	100

Table 4.1 shows that all 250 of the distributed questionnaires were returned, indicating a strong response rate of 100%. The high response rate indicates that the participants were highly engaged and eager to take part in the survey. The reliability and validity of the data gathered are improved by this degree of involvement, which strengthens the validity of the study's conclusions.

4.2 Gender of the respondents

The participants' gender must be considered as a critical component when creating an explanatory structural model of the interaction between training, quality, health, and safety at Mitchell Drilling International. Figure 4.1 presents a summary of the gender % distribution, which is a useful tool for drawing insightful conclusions from the investigation.

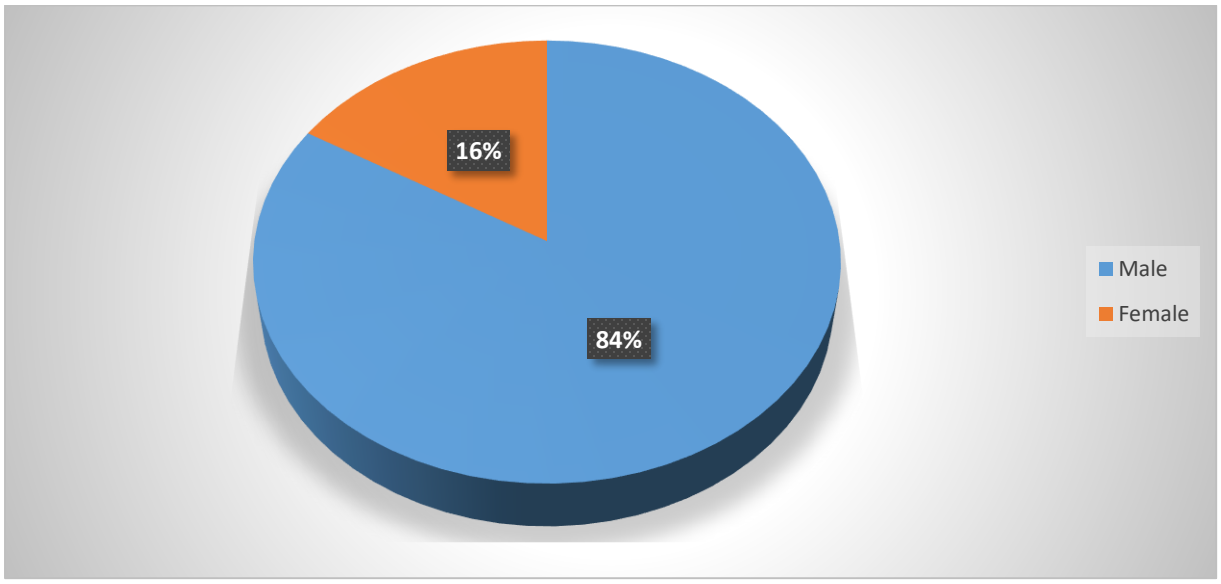


Figure 4.1: Gender distribution

A detailed gender distribution throughout the sample is shown in Figure 4.1. 84% are female, and 16% are male, making up the majority. There are 250 people in the sample overall. This gender split offers important insights about Mitchell Drilling International's (MDI) workforce mix.

4.3 Age distribution

The Mitchell Drilling International (MDI) research participants' age distribution is shown in Figure 4.2. The participants have been divided into discrete age groups, and the figure shows the proportion of participants in each age group.

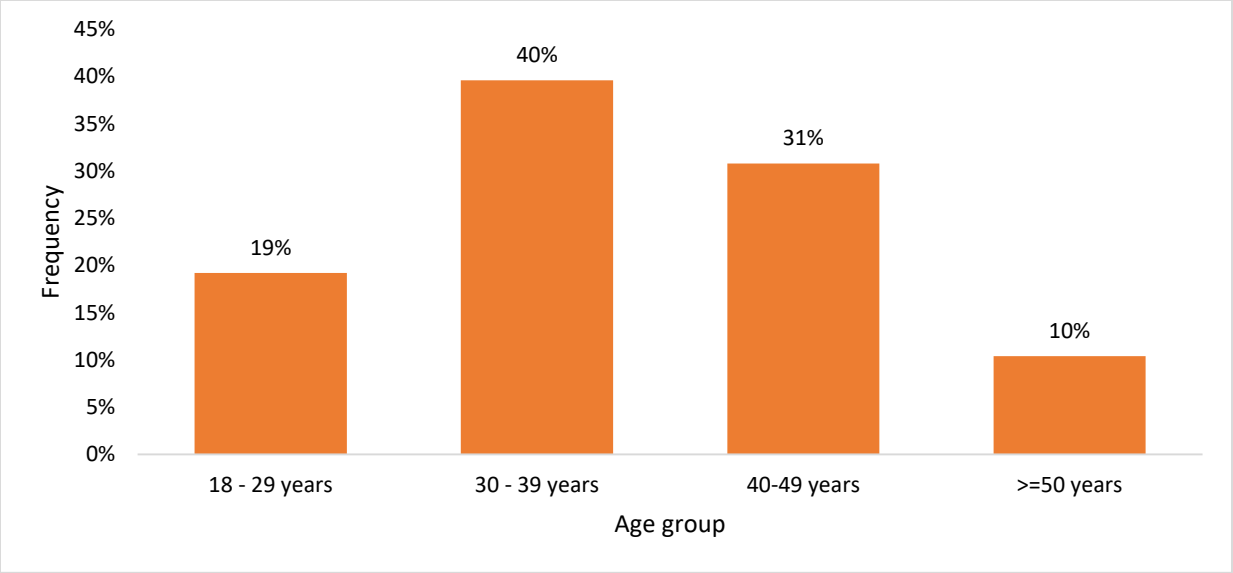


Figure 4.2: Age groups of employees

A diverse representation of age groups may be seen in the survey findings' age distribution. There is a notable presence of responders in their thirties, since the biggest cohort of Mitchell Drilling International (MDI) personnel falls within the 30- to 39-year age range. After this, the 40–49 age group makes up a sizable part, indicating a varied mix of people in their forties. While respondents 50 years of age and older make up a significant portion of Mitchell Drilling International's workforce, the 18–29 age group stands out for include younger respondents.

4.4 Educational qualifications of employees

One of the most important variables in creating an explanatory structural model for work satisfaction at Mitchell Drilling International is the educational background of the participating staff members. The participants' educational backgrounds are briefly described in Table 4.2, which provides important context for understanding the breadth of knowledge and abilities that workers bring to their positions.

Table 4.2: Educational qualification of employees

Qualification of mining sector employees	Frequency	Percent (%)
Certificate	138	55.2
Diploma	63	25.2
Degree	39	15.6
Other	10	4.0
Total	**250**	**100.0**

Table 4.2 shows a varied distribution of Mitchell Drilling International (MDI) workers' credentials. Certificates are held by a significant percentage of respondents, suggesting that specialized training or occupational credentials are common. Furthermore, a significant portion of the workforce has a diploma, indicating a workforce with specialized and targeted educational backgrounds. Another group has degrees, suggesting a significant percentage with more education. Last but not least, a group may be classified as "Other," which implies a range of educational backgrounds or credentials not specifically included in the poll. This breakdown highlights the diverse skill sets of Mitchell Drilling International's staff and provides a qualitative overview of the company's educational environment.

4.5. Duration of employment

A brief summary of the tenure or duration of service of the participants at Mitchell Drilling International is shown in Figure 4.3. The picture depicts a wide range of experiences, representing the length of time that people have worked for their separate organizations.

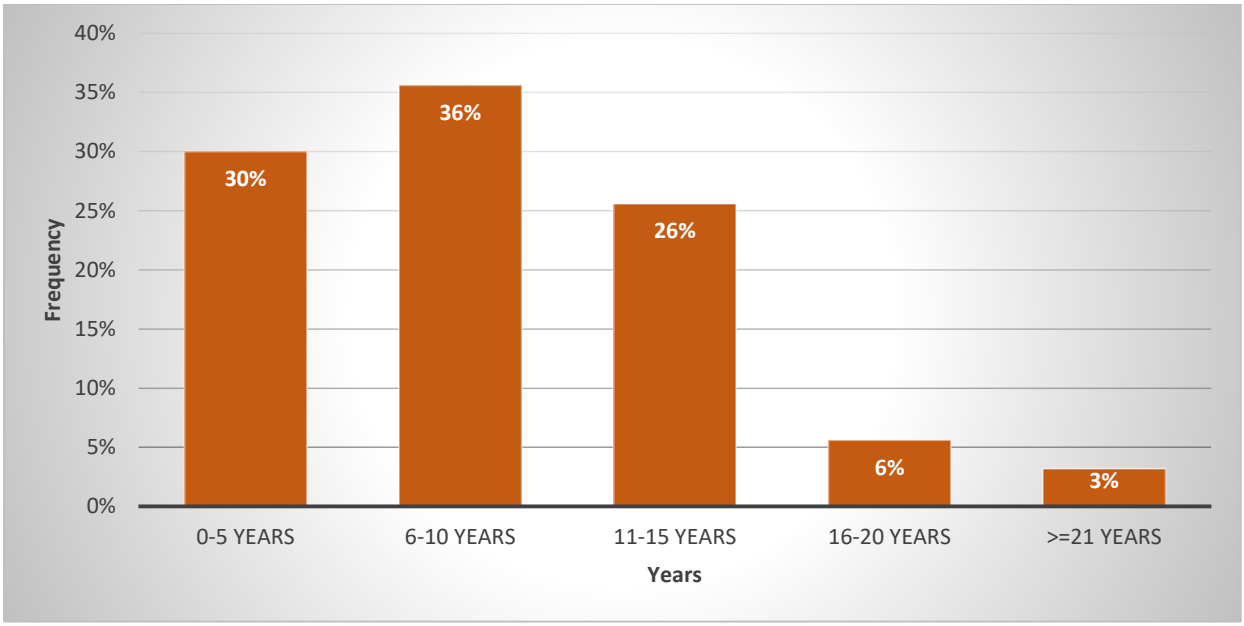


Figure 4.3: Duration of employment

The survey findings indicate that workers at Mitchell Drilling International have a range of durations of service. A significant percentage of them are in the 6–10 year range, which suggests a high degree of mid-range professional experience. Furthermore, there is a noticeable presence of people with 0–5 years of service, which points to a rise in the number of relatively recent arrivals in the industry. A mid- to long-term experience level is seen in the well-represented group of individuals with 11–15 years of service. Those with long service are present, but in fewer numbers, as seen by the distribution of those aged 16–20 and >=21 years. This breakdown provides qualitative information on the tenure distribution of Mitchell Drilling International's workforce.

4.7 Reliability analysis of the study variables

Maintaining the validity and reliability of the research instruments depends on making sure the constructs used in this study are internally consistent. Table 4.4 displays the findings of tests for Cronbach's alpha (CA), Composite Reliability (CR), and Average Extracted Variance (AVE). These analyses provide important information on the quality of the data, which helps researchers draw reliable inferences from the results. At Mitchell Drilling International, a comprehensive examination of the variables—Training (TR), Quality (QUA), and Health & Safety (HS)—will aid in the development of a structural model that explains the interrelationships among these factors.

Table 4.4: Reliability results

Variable	CA	CR	AVE
A	0.915	0.947	0.856
D	0.816	0.878	0.644
TR	0.942	0.948	0.508
HS	0.794	0.858	0.549
QUA	0.922	0.934	0.543
SD	0.857	0.895	0.590
SP	0.877	0.906	0.581
TD	0.774	0.847	0.527
UOR	0.700	0.861	0.757
V	0.834	0.880	0.556

The study's constructs' internal consistency is confirmed in Table 4.4, where CA and CR values above the suggested cutoff of 0.70. AVE values over the recommended 0.5 level further highlight the measurement constructs' dependability. Removing measurement items with factor loadings less than 0.70 improved the model's reliability. The Fronell-Larcker criteria was used to determine discriminant validity, and Table 4.5 provides specific results.

Table 4.5: Fronell-Larcker criterion results

	A	D	TR	HS	QUA	SD	SP	TD	UOR	V
A	**0.925**									
D	0.795	**0.802**								
TR	0.625	0.681	**0.713**							
HS	0.634	0.749	0.666	**0.741**						
QUA	0.892	0.922	0.722	0.832	**0.737**					
SD	0.587	0.650	0.815	0.646	0.681	**0.768**				
SP	0.599	0.649	0.964	0.629	0.690	0.685	**0.762**			
TD	0.632	0.711	0.727	0.820	0.810	0.715	0.667	**0.726**		

UOR	0.469	0.503	0.577	0.561	0.587	0.555	0.521	0.783	**0.870**	
V	0.625	0.697	0.669	0.849	0.859	0.607	0.639	0.802	0.576	**0.746**

Note: The number in bold is the square root of AVE.

Significant evidence supporting the discriminant validity of the measuring model used in this investigation is shown in Table 4.5. Interestingly, the correlation coefficients between components are less than the square root of the AVE for each factor. This striking finding confirms the measuring constructs' distinctiveness and guarantees that they reflect different underlying features. The research also used the Heterotrait-Monotrait Ratio of Correlations (HTMT) approach to support the case for discriminant validity; the results are shown in Table 4.6.

Table 4.6: HTMT discriminant validity

	A	D	TR	HS	QUA	SD	SP	TD	UOR	V
A										
D	0.805									
TR	0.673	0.778								
HS	0.735	0.817	0.761							
QUA	0.856	0.857	0.778	0.971						
SD	0.668	0.783	0.808	0.777	0.774					
SP	0.673	0.774	0.860	0.752	0.777	0.801				
TD	0.749	0.893	0.849	0.841	0.865	0.881	0.814			
UOR	0.589	0.660	0.709	0.741	0.735	0.712	0.668	1.036		
V	0.716	0.850	0.776	0.840	0.887	0.740	0.773	0.893	0.753	

The HTMT results indicate strong discriminant validity as the HTMT ratios continuously fall below the recommended cutoff of 0.9. This result emphasizes the validity and reliability of the measuring approach used to evaluate quality (QUA), training (TR), and health and safety (HS). The findings of the variance inflation factor (VIF) analysis, which was done in order to investigate possible multicollinearity, are shown in Table 4.7.

Table 4.7: Full collinearity statistics (VIF) results

Variable	VIF	Variable	VIF
A	2.209	SD	2.685
D	2.116	SP	1.943
TR	1.940	TD	1.158
HS	2.915	UOR	2.902
QUA	2.883	V	2.145

The table displays the VIF values for each of the model's latent variables, which are essential for identifying multicollinearity. High VIF levels increase the possibility of inaccurate results and skewed estimations. The findings, however, show that all VIF values comfortably remain considerably below the 3.3 threshold that Hair et al. (2011) advised. The dependability of the model is strengthened, and the validity of research findings is increased, since this reassures that multicollinearity is not a significant worry in the study's data.

Model adequacy was assessed using several fit indicators before testing the hypothesis. Among them, R2 and Q2 are crucial, and Briones-Penalver et al. (2018) recommend that these metrics be greater than zero. Table 4.8 presents important goodness-of-fit results, summarizing a number of indices, including the Standardized Root Mean Square Residual (SRMR) and the Normed Fit Index (NFI).

Table 4.8: Goodness of fit results

Latent variable	R^2	Q^2	SRMR	NFI
TR	0.580	0.476	0.074	0.908
HS	0.657	0.521		
QUA	0.679	0.482		

The goodness-of-fit findings, which are shown in Table 4.8, confirm the suggested route model's predictive significance for every dependent construct in the research. According to Briones-Penalver et al. (2018), the model exhibits excellent quality, with R2 and Q2 values above zero. A decent match is shown by the SRMR value of 0.074, which is below the suggested cutoff of 0.08 and further supports the model's acceptance. A strong model fit to the data is further confirmed by

the NFI score of 0.908, which is higher than the recommended 0.90 criterion. When taken as a whole, these results show that the suggested model successfully depicts the connections between the study's variables.

4.8 Structural model

The research used the partial least squares (PLS) method and SmartPLS software to analyze the data. With an emphasis on comprehending the interactions between training, quality, health, and safety, this technique was used to build an explanatory structural model. The following theories were investigated.

H1: Training (TR) is positively associated with Health and safety (HS).
H2: Health and safety (HS) is positively associated with Quality (QUA).
H3: Training (TR) is positively associated with Quality (QUA).

Table 4.9 showcases the outcomes of the partial least squares (PLS) analysis for the structural model.

Table 4.9: SEM path coefficients.

Hypothesis	Relationship	Coefficient	T statistic	P-values	Decision
		Direct effect			
H1	TR -> HS	0.810	20.448	<0.001	Supported
H2	HS -> QUA	0.360	6.504	<0.001	Supported
H3	TR -> QUA	0.054	1.993	0.046	Supported

As shown in Table 4.9, the study's findings confirm that Training (TR) has a significant positive impact on Health & Safety (HS) ($\beta = 0.810$, $p < 0.001$), highlighting the significance of funding staff training for improved health and safety. Additionally, the study finds a strong positive association between Quality (JS) and Health & Safety (HS) ($\beta = 0.360$, $p < 0.001$), highlighting the significance of promoting health & safety to improve overall quality. Also, the analysis shows that Training (TR) has a substantial positive effect on Quality (QUA) (β

= 0.054, p = 0.046), highlighting the need of encouraging strong staff training for higher-quality goods and services.

These findings support Hypotheses 1 through 3 and highlight the relevance of elements like quality, safety, and training at Mitchell Drilling International (MDI). They also show that all of the links that have been suggested are statistically significant at a 5% significance level.

4.9 Chapter Summary

The study's many aspects are covered in this chapter, including the structural model, diagnostic tests, reliability data, and the response rate and demographic information of the participants. Furthermore, a thorough examination of the relationship among Health & Safety (HS), Quality (QUA), and Training (TD) has been carried out. An in-depth analysis of the study's findings will be provided in the next chapter, which will also carefully connect the results to relevant literature.

CHAPTER FIVE

DISCUSSION OF RESULTS

5.0 Introduction

The chapter concentrates in interpretation as well as discussion of the data that has been collected in the field research carried out at Mitchell Drilling International in the form of a questionnaire. The data to be presented and analysed will form a ground on which the sub-research questions are answered appropriately and will help the researcher to draw research conclusions.

5.1 Discussion of Research Findings

5.1.1 Demographic Data

This section looks at statistically the demographic data of responses of the respondents per the major hypothesis tested of the research study which is *'A structural model on the relationship between training, quality, health & safety at Mitchell Drilling International.'*

Age

The highest frequency of 40 percent of the respondents was the 30-39 years age group and the lowest has been 50 years age group that has has 10 percent as shown in table 4.2. Hence, the golden generation are contented when they work in mining sector. The youth have outrageously sold their souls to the mining organisations because it is the only lively sector in which they can find jobs (Hilson, 2020).

Gender

The gold mining sector as depicted on Figure 4.1 is males dominated (84%) compared to the female's response rate of 16%. It can therefore be noted that the issue of gender is taken into consideration as a sizeable number of female employees are also employed (Jenkins & Fisher, 2021). Mining is generally labour intensive hence males find more satisfaction in performing jobs such as mining compared to women.

Educational qualifications of employees.

A notable proportion of respondents hold certificates, indicating a prevalence of specialised training or vocational qualifications. Additionally, there is a significant presence of individuals

with diplomas, reflecting a workforce with specific and focused educational backgrounds. Another segment holds degrees, indicating a notable proportion with higher academic qualifications. It can therefore be noted that mining consists of employees who play different trades hence qualifications in areas such metallurgy, mining, mining engineering and geology become very critical (Koekemoer & Masenge, 2023).

Duration of employment

The tenure of employees at Mitchell Drilling International reveals diverse lengths of service based on the survey results. A significant portion falls within the 6-10 years category, indicating a substantial mid-range experience level within the workforce. Additionally, there is a notable presence of individuals with 0-5 years of service, suggesting an influx of relatively newer entrants to the sector. Those with 11-15 years of service form another well-represented group, reflecting a mid to long-term experience level. Fundamentally, employees with more experience can do the job quicker than those with little experience (Satata, 2021).

5.1.2 Hypothesis Testing

Training (TR) and Health and safety (HS).

Hypothesis (H1) that stated that Training (TR) has a positive relationship with Health and safety (HS) was supported ($b = 0.810$, $p < 0.001$). Therefore, it can be concluded that spending money on training of their employees improves the health and security of workers. It is germane to mention that the raining and development of employees also allows the mining organisations to compete at the national, regional and international scales (Chikove, 2023). Of interest is that training and development of the employees creates safety at both the workplace leading to eventual contentment in career (Magaisa & Musundire, 2022). Moreover, employees who receive training are more dedicated to the organisational objectives and most importantly are always willing to shine in their field of expertise. Training will make employees learn about safety processes, routines, and best practices minimizing the chances of accidents and injuries. Training equips the employees with the know-how they require to execute the job safely and effectively. Training creates awareness of the possible hazards, risks and consequences so that employees can take their initiatives. Training ensures that employees know regulatory requirement, industry standards and company policies and hence minimizes the risk of non-compliance. Training helps to make

employees prepared in making decisions about safety, risks management, and response to emergency. Yh, Sweetie (Huang et al., 2022).

Organisations may invest in training so as to improve the safety of the workplace environment, decrease injuries and diseases in the work place as well as enhance the general employee health. Occupational health and safety (OHS) is closely associated to training. Well-trained employees minimize hazards at work places. Therefore, through training the staff on safety measures and rules. It is also imperative to mention that training the personnel protects against injuries and sicknesses where workers are trained on how to undertake their activities safely. It also increases adherence to the requirements and industry standards. Also, training fosters a safety culture since it helps the employees to focus on safety (Hieu, 2020). The environment at work place is dynamic and therefore skills required by the employees are always expected to be given constant and continued up-gradation. Incident response programs are also facilitated by training of the employees to react to the emergency situations appropriately.

Health and safety (HS) and Quality (QUA).

The hypothesis (H2) stating that the Health and safety (HS) is positively related to Quality (QUA) has been accepted ($p < 0.001$; $8 = 0.360$). The findings suggest that healthy and safe working environment reduces the number of distractions, tiredness and stress and thus less errors. When the employees are not afraid and feel supported, they will be able to focus more on their work. Good health and safety culture initiates increased engagement and motivation among employees. These findings match with Chen et al. (2021) who state that in the mining sector, risks are the norm, and the work setting might be hazardous. It is essential to establish strong safety culture. It secures employees and makes operations successful. A safety culture is not just regulatory compliance; the safety culture refers to a mentality. Nonetheless, quality issues in the mining business evoke many challenges to the sphere of safety (Tetzlaff et al., 2021). Health and safety are born out of the caliber of machines (Bajracharya et al., 2023). Such requirements are to be included in the current safety policies.

Conversely, employees are given the responsibility of availing reasonable care of their safety and those of others (Marimuthu et al., 2021). To aid this process there is the arrangement of the

nomination of safety representatives and safety committees among employees and there is the compelled statement of the employer who is represented by management and this person must publish a written statement of his/ her safety policy (Alsharif et al., 2024). Steenkamp and Van Schoor (2002) correctly state that occupational health and safety is one of those complex international issues that the management and the society as a whole ought to put on the front burner all the time. The safety procedures and work processes that are well designed lead to uniformity in the quality of output. A safe working place lowers injuries together with illnesses, thereby reducing the effects of absenteeism on productivity. Focusing on health and safety, organisations could improve the quality of the products, customer satisfaction, and performance. Slip ups are large enough and calamities know no limits or nationalities and this is the reason that this issue between nations should be brought together and occupational health and safety should be publicised and made a priority to achieve the gala of timely alarm, protection and prevention in the short term, available to everyone (Bajracharya et al., 2023).

Training (TR) and Quality (QUA).

The Hypothesis (H 3) that Training (TR) and Quality (QUA) are positively related has been accepted, ($p = 0.046$), ($B = 0.054$), which reinstates the importance of driving quality out by embracing sound training schedules. In essence, the skills and knowledge are improved and this gives the employees the power to work in an efficient manner. The findings are in line with those provided by Tua et al. (2022) which claim that the job satisfaction also increases due to the training. Therefore, employees are less insecure and are more empowered to do their jobs. It also causes minimized mistakes. Training reduces error and enhances quality. It results in increased safety since the employees are taught safety procedures and protocols. Training assists workers to adapt to emerging technologies, procedures, or functions. The move to invest into the development of the employees is a sign of value and support (Vavenkov, 2022). Employees that are highly trained offer superior service. Professional and educated workers boost innovations and growth.

Training aids the development, innovation and success of organisations. MacMahon et al. (2024) Focus on the fact that training and development of workers to a higher degree promote job satisfaction (Su et al., 2022). It also improves skills and knowledge through training. The best practices, procedures and standards are taught to employees and in the process there are fewer

errors committed in the lines of duty. Quality products/ services are better because they have been handled by well trained employees who make less errors. It also brings about increased consistency. Therefore, standardised training encourages uniformity of processes and results. It as well aids the process of continuous improvement. The trained workers are able to figure out improvement areas. Employees become more competent, making them produce quality work.

We cannot ignore the fact that, training investment can result to a better product/service quality as well as customer satisfaction, less waste/re-work and most importantly, a better organisational performance (Vavenkov, 2022). Management therefore can yield quality excellence by focusing on training in organisations in order to achieve the desired organisational objectives. This means that training and employee development has been viewed to be a part of organisations in the achievement of employee commitment. It is disclosed that following the introduction of globalisation and the age of technology, organisations are supposed to concentrate on the delivery of training to employees (Smee eta al., 2024). According to a study done by Yura & Andryei (2022) whose findings show that training motivation and training support does have an impact on job satisfaction and thus fosters quality of output. These findings support the importance of the training in organisations since training imparts a feeling of commitment in employees so that they can perform well in the tasks.

The statement of Tua et al. (2022) confirms that it applies to their professional competencies training to get those facts which are essential in their profession. Therefore, it ought to be given and created in a scheduled way regularly. In this respect managers are advised to come up with a proper training and development system that evaluates their needs and make available to them. When these trainings are offered to the employees, they establish an element of care and feeling among the employees that the employers care and belong to them thereby contributing to their commitment to the organization (Vavenkov, 2022).

5.3 Summary

In this chapter, research finding was discussed in two headings which also include the demographic profile of respondents and hypothesis testing. The use of relevant literature was also made in relation to the significance of demographic information in a research study. The outcomes of the test of hypotheses have also been brought out in the chapter and literature being referred to in the

case where hypothesis was accepted. The following chapter is concerned with conclusion and recommendations of this research study.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This chapter aims at revealing the conclusions and study recommendations that can be applied by the key figures in the firms operating in the mining industry. The recommendations regarding future research will also be shown in the study. The gist of this given study is that the study aimed to formulate a structural development of how training, quality including health and safety relate in the mining industry in which case, it was based on Mitchell Drilling International (MDI).

6.1 Summary of the study

The aim of the research was to establish a structural framework of interdependence between training and quality besides health and safety in the mining sector of Mitchell Drilling International (MDI). Chapter one has the critical elements of the research and it includes the background of the research and the problem statement which is the backbone of the research. Chapter one also provides the research objectives and questions which will provide directions and guidelines to the research. The theoretical and practical implications of the study to the students, managers and stakeholders in the mining industry were also described. Delimitation of the study, was that the study concentrated in Mitchell Drilling International (MDI) which is headquarter in Botswana and applied literature that was published between 2021 and 2025.

In the second chapter, there is literature, which is relevant in the critical discussion of effectiveness of internet banking. The chapter is categorized into six major sections and these are theoretical framework, overview of the constructs, conceptual framework, Hypothesis development, empirical literature review and the research gap. The data are extracted in the articles of the companies, journals, and books of different authors. The chapter proceeded to examine the theoretical framework and theories that are discussed which were; Psychology of Working Theory and Employee Engagement Theory. The Conceptual framework consisted of predictor variables

of training and health and safety and the outcome of quality. Empirical literature survey examined what other researchers discussed in other parts of the globe. The research gap in this study was also identified and this assisted the researcher to identify a meaningful research study.

The third chapter had research methodology adopted in the collection of data. The chosen research philosophy was positivist that lays stress on quantitative data. The chapter explained how the exploratory-case study research design came about in the collection of quantitative data. There were 250 participants in the study. The chapter illustrates also, how the convenience sampling technique was applied to derive 250 respondents as sample of the target population. This was the sampling method of choice since the participants were chosen on the basis of their accessibility. As the research instrument a questionnaire was adopted and it consisted of Likert scales type questions. The procedures of data analysis, reliability and validity have been addressed. The significance and usage of ethics in research was mentioned. Ethical concerns to the research were raised and noted throughout the research.

The fourth chapter mainly focused on presentation and analysis of the research findings which were obtained using research methodology as described in chapter three. Two hundred and fifty questionnaires were distributed to the targeted sample and the researcher recovered all the questionnaires well completed. Demographic data and background information of the respondents was stated, presented, analysed and interpreted. The research data collected from respondents was presented, analysed and interpreted in the order of the research objectives. The gathered data was presented, analysed and interpreted to answer the research questions. The gathered data were presented in tables and graphical forms.

5.2 Summary of findings of the study

A summary of results obtained through research conducted is given as follows. The summary was made in line with the objectives of the research.

Training (TR) and Health & safety (HS).

The outcomes showed that training of the employees improves their safety and health. Of essence is the idea that training and development of the employees allow the mining organisations to be national, regional as well as international competitors. Through investment in training, organisations can achieve a safer work environment, fewer injuries and illnesses and the well-being of the employees in general. Employee training and development fosters workplace safety that eventually results in work contentment. Moreover, skilled workers feel more dedicated towards organisational objectives and most importantly, they want to outdo themselves in their field of expertise. The training can educate workers on safety practices, guidelines, and best practice, minimizing the chances of an accident and injury. Training also enables workers with the knowledge and skills which enable them to work effectively and safely. Training sensitizes on the possible dangers, risks and outcomes that can occur and thus empower employees to initiate proactive actions before they occur. Employee training minimised the risks of non-compliance, as it instroduced the employees to regulatory conditions and industry standards as well as the company policies. The training will help the employees to make informed safety, risk management, and response in the event of an emergency.

Health and safety (HS) and Quality (QUA).

The findings showed the positive correlation between health and safety (HS) and quality. the findings suggest that good and healthy environment reduces the distraction, fatigue, and stress, which causes a low number of errors. Employees also have the opportunity of focusing better in their duties when safety and support is provided to them. Good health and safety culture will enhance employee participation and inspiration. Safety culture is more than tracking down how to avoid violating regulations; rather, it is an attitude of lay-more emphasis on safety. Safe work place minimises the number of cases of injuries and illnesses thus minimising the term-time absenteeism and concomitant losses in productivity. When health and safety are under priority, then the quality of products, customer satisfaction, and organisational performance get improved.

Training (TR) and Quality (QUA).

Findings indicated that the process of promoting quality out can be attained through adoption of vigorous training programs. Improved skills as well as knowledge will help the employees work

more effectively. It also results in job satisfaction because of training. In this way, employees will be more confident and more competent at the job. It also brings about less errors. Training will reduce errors and offer quality. It contributes to strengthening the security because workers will be trained how to operate safely. Training assists the employees in adapting new technology, processes, or roles. Training as well helps in organisational development, and innovativeness and success. Training increases skills and knowledge as well. Workers also experience the best procedures, practices and standards thus causing limited errors in the course of their work. Professionally trained employees are less error prone, hence high quality of products/services. It makes it more consistent as well. Hence, standardised training facilitates uniform processes and products. It also promotes continuous improvement. Well trained employees have ability to spot elements of improvement.

6.1 Conclusions

The research found out that the training is on the positive side as regards to health and safety. As different scholars attest to safe working conditions and prevention of accidents is under management and most of the time; the management hands over this responsibility to the human resource manager. Laws require employers to pay any employee when it can be established that the accident happened as a result of mistreatments in the name of the employer, not following the set safety requirements and measures, faulty machines and equipments. Monitoring of health and safety is an important practice in the mining industry to guard workers and guarantee the effectiveness of operation. The solution in ensuring that employees are not in harms way is training. The mining sites are full of exclusive risks that may influence health and safety of the workers including airborne pollution and operational risks. This monitoring of health and safety in the mining industry and also providing an insight into the current training practices and technologies together with strategies employed with the aim of keeping the workers safe and having good health is a must. Continuous monitoring on the physical safety of the employees especially their exposure to hazardous substances is very important in the early detection of any health risks.

The paper found out that there is positive correlation between quality and health and safety. Employees are able to work effectively through the need to give them a safe and healthy working

environment and therefore, a culture of quality is nurtured. Health and Safety regulations that insure the safety of employees to risks experienced in the workplace may be contrary to the interest of managements who set out to cut down the production cost. They cannot work in a sick and unsafe environment because the employee needs to give the best towards ensuring that the organisational goals are met. Therefore, maintenance of health and safety at the work place is most crucial as it builds a significant influence on image of the company.

The researcher found out that there is a positive relationship between Training and quality. Train and develop your workers. To a higher degree, job satisfaction is achieved through training and development of the employees. This means that it has been viewed that training and development of employees is part and parcel within organisations in an effort to improve workforce commitment. It is disclosed that with globalisation and the age of technology, organisations are supposed to be involved in the process of offering training to the workforce. The findings show the importance of training in organisations because it brings a commitment among the employees to perform their tasks appropriately. Employee training assists in acquiring certain skills that are needed in their professional areas.

6.2 Recommendations for Practice

- The findings of this research are sector specific in the sense that it only concentrated in the mining sector with special consideration on Mitchell Drilling International. Its findings cannot be generalised to other sectors of the economy.
- This study suggests to the managers in mining firms that the employees should be constantly and continuously trained to ensure that their skills are up to date. Employee morale is created by the training and development of the employees.
- The managers of Mitchell Drilling International ought to adopt the vision of Total Productive Maintenance (TPM) and lean towards better equipment reliability, workplace safety, and improving productivity.
- Another recommendation that comes as a result of the study is that management of Mitchell Drilling International ought to engage in Regular equipment maintenance, which assists in the avoidance of accidents in the construction sites.

- It has also been advised that it is important to wear proper PPE by employees to ensure minimisation of chances of injury. The PPEs like helmets., gloves, respiratory gear, and reflective wear should be checked and updated among the employees to make sure that workers are well-protected.

6.3 Recommendations for Further Studies

The following recommendations are made for future studies:

- This research attempted to come up with a structural model of the interrelation between training, quality, health & safety at the Mitchell Drilling international. It shall be sound to consider the mining sector in an attempt to enable generalisation of the findings to the entire mining sector.
- The nature and influence of the employee engagement factors on the job satisfaction levels may also be addressed in future researchers. This would help the managers of the mining firms to possess an array of motivational variables in their tool box to apply in moments of need particularly when there is a high rate of labour turn over.

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APPENDIX A: RESEARCH INSTRUMENT

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE

RESEARCH QUESTIONNAIRE

BY

LUTHER MAVHENGERE

B241889A

The questionnaire below is part of the Master of Science in Occupational Health, Safety, and Environmental Management study that seeks to develop a structural model on the relationship between training, quality, health & safety at Mitchell Drilling International.

A. INSTRUCTIONS:

1. You are kindly requested to complete this questionnaire it will not take you more than 30 minutes to complete and please do not write your name on this document.
2. By answering this questionnaire, you consent to take part in this study.
3. Please respond as honest as possible and note that there are no right or wrong answers.

B. IMPORTANT INFORMATION.

The company and you are part of a representative that forms part of those under study in the gold mineral sector. Your attitudes and opinions in relation to enhancing health and safety in the mining industry are critical to the success of this study. I recognise the value of your time and sincerely appreciate your efforts on my behalf. Individual responses are anonymous and the study is purely for research purposes only hence all company level data will be treated with utmost confidentiality.

INSTRUCTIONS

1. Evaluate your level of agreement with the statements presented.

2. Use the given scales to **tick/ circle** your answer.
3. Please respond as honest as possible and note that there are no right or wrong answers.

SECTION A

Respondents Demographic Information

For each question below please put an '**X**' in the appropriate box of your preferred answer. If your answer to a question is not in the options provided, write it in the space to the right of "Other (Please specify)". Please answer all questions.

1. Age

a) 18 - 29 ☐ b) 30 - 39 ☐

c) 40-49 ☐ d) 50 and above ☐

2. Gender

a) Male ☐ b) Female ☐

3. Marital Status

a). Single ☐ b). Married ☐ c). Windowed ☐ d).divorced ☐

4. Highest Level of Education

a) Certificate ☐ b) Diploma ☐ c) Degree ☐

d) Other (specify) _____

5. Duration of employment (in years)

a) Less than 5 ☐ b) 5 - 10 ☐ c) 10 and above ☐

Using the scale given below, please **tick or circle** the statement that best represents the extent to which you agree with these given statements:

1 Strongly disagree

2 Disagree

3 Neutral

4 Agree

5 Strongly agree

SECTION B:

Training

	To what extent do you agree or disagree with the following factors relating to the training of skilled employees. Indicate your response on a scale ranging from strongly disagree=1, Disagree=2, Neither agree nor disagree=3, Agree=4, Strongly agree =5. Please simply put a tick in the box representing your preferred number. If you make a mistake, cancel the tick and choose another answer.					
	Benefits of training of employees	**1**	**2**	**3**	**4**	**5**
TR1	Support succession planning.					
TR2	It enables critical thinking					
TR3	Problem solving skills are imparted to employees.					
TR4	Increase employee value.					
TR5	Communication skills are enhanced through training					
TR6	To change attitudes					
TR7	Reduction in recruitment costs.					
TR8	Employees become creative and innovative					
TR9	To inculcate the culture of the organisation in all staff.					
TR10	To acquire new skills for old skills					
TR11	Better workplace behaviour					
TR12	Assist in building your company reputation					
TR13	Interpersonal skills are improved					
TR14	Enables employees to adapt to constant change.					
TR15	A safer workplace is created.					
TR16	Teamwork is enhanced					
TR17	Management skills training enables better leadership development.					
TR18	Builds highly motivated employees					
TR19	Helps to improve individual, group and organisational performance.					
TR20	Reduces labour turnover.					

SECTION C.

Health and Safety

	To what extent do you agree or disagree with the following factors concerning the health and safety of miners. Indicate your response on a scale ranging from Strongly disagree =1, Disagree=2, Neither agree nor disagree=3, Agree=4, strongly agree=5. Please simply put a tick in the box representing your preferred number. If you make a mistake cancel the tick and choose another answer.					
	Benefits of health and safety	**1**	**2**	**3**	**4**	**5**
HS1	Effective health and safety practices help you protect your staff from injury and illness in the workplace.					
HS2	Good health and safety measures at work reduce absences and sick leave					
HS3	A safe and healthy work environment enhances self-esteem and a sense of well-being					
HS4	Builds a healthier workforce and increases the worker's competency levels					
HS5	Health programs help employers and employees understand the potential hazards they are exposed to on a daily basis.					
HS6	Good health and safety will boost morale, increase productivity, profits and hence reduce costs.					
HS7	Competent and trained employees in the workplace are easily attracted and retained.					
HS8	Reduce your insurance premiums, as well as the costs of accidents that are not covered by your insurance.					
HS9	It enhances the reputation and image of the company.					
HS10	Effective health and safety save the time and costs of recruiting and training a new member of staff.					
HS11	It demonstrates that the business is socially responsible					

SECTION D:

QUALITY

	Quality plays a pivotal role in enhancing the efficiency & effectiveness of personnel. To what extent do you agree or disagree with the following. Indicate your response on a scale ranging from strongly disagree=1, Disagree=2, Neither agree nor disagree=3, Agree=4, Strongly agree =5. Please simply put a tick in the box representing your preferred number. If you make a mistake, cancel the tick and choose another answer.					
	Benefits of having a culture of quality at an organisation.	**1**	**2**	**3**	**4**	**5**
QUA1	Greater consistency in tasks and activities involved in the production of products and services					
QUA2	Increased efficiency in processes, reduced wastage, and improved use of time and other resources					
QUA3	Improved customer satisfaction					
QUA4	Increased productivity by improving the effectiveness of employees and processes					
QUA5	Reduced costs.					
QUA6	It makes it easier for businesses to integrate new employees, and thus helps businesses manage growth more seamlessly.					
QUA7	It enables a business to continuously improve its products, processes, and systems.					
QUA8	It ensures increased revenues and higher productivity for the organization.					
QUA9	It helps organizations to reduce waste and inventory					
QUA10	Quality management is essential to create superior quality products which not only meet but also exceed customer satisfaction.					

THANK YOU

THANK YOU FOR TAKING YOUR TIME TO COMPLETE THIS QUESTIONNAIRE

APPENDIX B: LETTER OF INTRODUCTION