

Assessing the efficiency of the occupational health and safety management system at a South African university

by

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DECLARATION

I, **Ntombenhle Mtikitiki**, declare that the contents of this dissertation/thesis represent my own unaided work and that the dissertation/thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessary those of the Cape Peninsula University of Technology.

Signature

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Date

ABSTRACT

The impacts associated with industrial activities are increasing globally, attracting attention from safety practitioners, environmentalists, and researchers. This rise in industrial activities has led to an increase in accidents, driven by the expansion of industries and the use of advanced technologies to speed up production. Both production and service industries recognize the importance of Occupational Health and Safety (OHS) practices for ensuring the quality of products and services. Unlike many other industries where the production process and service delivery are often separated, the production and consumption of university services are closely linked. Therefore, the quality of education is significantly influenced by OHS measures. A safety incident at a university could have far-reaching negative effects on the nation's present and future. Although safety practices have been well-examined in various industries, managing and handling accidents within the education sector, particularly on university campuses, demands considerable attention.

This study aims to fill this gap by assessing the efficiency of OHSMS at a South African university of technology. The research objectives included determining the availability of an OHSMS, identifying stakeholder roles and responsibilities, evaluating the effectiveness of OHSMS implementation, and assessing staff and student attitudes towards health and safety practices. A qualitative research design was employed, incorporating in-depth interviews, qualitative observations, and document analysis to gather comprehensive data. Thematic analysis was used to identify recurring themes and patterns. The study revealed that while there is strong awareness of the OHS Act 85 of 1993 among university staff, significant gaps exist in communication, enforcement, and compliance with roles and responsibilities. Challenges include infrastructure maintenance, resource shortages, procedural delays, and insufficient training. Hazard identification relies heavily on inspections, but regular reviews are inconsistent. Although resource allocation is considered adequate by a majority, some report delays and shortages. Training participation varies, with declines in some areas and improvements in others. Emergency evacuation drills show general compliance but highlight the need for better training. Document reviews indicate that policies are not always visibly displayed or regularly reviewed.

While universities primarily focus on delivering education, health and safety risks could undermine their core mission and objectives. Despite awareness of OHS standards, the implementation and effectiveness of OHSMS require significant improvement to address communication, compliance, and resource challenges. The study recommends enhancing policy communication, reinforcing roles and responsibilities, improving infrastructure and resource management, conducting regular hazard assessments, increasing training participation, expanding OHS committees, enhancing emergency procedures, implementing regular management reviews, and improving documentation practices. These steps aim to improve the efficiency and effectiveness of the university's OHSMS, ensuring a safer environment for all stakeholders.

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DEDICATION

I dedicate this thesis to my beloved children, my precious triplets, Bahle Mtikitiki, Sihle Mtikitiki and Mihle Mtikitiki, whose constant curiosity about my progress and encouragement to study hard have been a driving force. Your love, patience, and enthusiasm have inspired me every step of the way. Thank you for being my greatest motivators and for always believing in me. As you grow and embark on your own paths, may this dedication be a beacon of inspiration, a symbol of love, and a reminder that you can achieve greatness. Know that I am always here to support you, to cheer you on, and to celebrate your victories, just as you have done for me. You are my greatest blessings, my source of joy, and my inspiration to reach for the stars.

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ABBREVIATIONS AND ACRONYMS

ANU:	Australian National University
BSI:	British Standards Institution
COC:	Certificates of Conformance
CEO:	Chief Executive Officers
CAB:	Conformity Assessment Body
DEL:	Department of Employment and Labour
DHET:	Department of Higher Learning and Training
HIRA:	Hazard Identification and Risk Assessment
HODs:	Head of Departments
HSE:	Health, Safety, and Environment
HEIs:	Higher Education Institutions
ILO:	International Labour Organisation
ISO:	International Organization for Standardization
MOS Act 6 of 1983:	Machinery and Occupational Safety Act 6 of 1983
NSFAS:	National Student Financial Aid Scheme
OHS:	Occupational Health and Safety
OHS Act 85 of 1993:	Occupational Health and Safety Act 85 of 1993
OHSAS:	Occupational Health and Safety Assessment Series
OHSMS:	Occupational Health and Safety Management System
OHSMSs:	Occupational Health and Safety Management Systems
COID Act 103 of 1993:	Occupational Injuries and Diseases Act 103 of 1993
PDCA:	Plan-Do-Check-Act

ROEs:	Return of Earnings
SHE:	Safety Health and Environment
SMEs:	Small and Medium Enterprises
SABS:	South African Bureau of Standards
SANAS:	South African National Accreditation System
SOPs:	Standard Operation Procedures
SHFs:	Student Housing Facilities
TEIs:	Tertiary Education Institutions
HiG:	University of Gavle

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Recently, the impacts associated with industrial activities have been increasing globally, attracting attention from safety practitioners, environmentalists, and researchers (Shabani, 2024). This rise in industrial activities has led to an increase in accidents, driven by the expansion of industries and the use of advanced technologies to speed up production. (Shabani, 2024). In developing countries, however, some risks often go unreported due to inadequate risk reporting systems (Shabani, 2024). To address these challenges, numerous organizations have implemented occupational health and safety (OHS) programs aimed at reducing or eliminating workplace accidents (Muhammad, 2021). These programs are part of a broader, more systematic approach known as the Occupational Health and Safety Management System (OHSMS), which integrates all aspects of occupational health and safety into a comprehensive management framework (Muhammad, 2021). The OHSMS follows a structured process that includes planning, implementation, measurement, and monitoring to ensure ongoing workplace safety and health (Muhammad, 2021). Complementing this perspective, Ledic (2024) highlights that OHSMSs are not only integral to managing and controlling risks that could impact workers' well-being, but they also play a crucial role in helping organizations comply with relevant legislation. Together, these insights underscore the dual function of OHSMSs which is fostering a safe working environment and ensuring regulatory compliance. Furthermore, Mohammedi (2020) emphasizes the critical importance of implementing an OHSMS in workplaces to safeguard employee well-being, reduce accidents, and create a safer work environment that also has positive environmental impacts. This approach is noted to enhance productivity and promote sustainable development, aligning with Johanes (2023) observation of the growing global awareness around Occupational Safety and Health Management Systems (OSHMSs). However, Johanes (2023) also points out a significant scepticism and reluctance, particularly in least developed and developing countries, toward adopting OSHMSs, highlighting a gap between awareness and implementation that warrants further exploration and understanding.

Nugroho (2021) defines a system as a cohesive assembly of components or sub-systems that are systematically arranged, interconnected, and unified towards achieving a common objective. In this context, an Occupational Health and Safety Management System (OHSMS) is a structured approach used for overseeing and regulating safety measures, specifically

designed to ensure safety through the interconnected elements of planning, implementation, measurement, and monitoring, typically following the Plan-Do-Check-Act cycle, also known as the Deming Wheel (Nugroho, 2021). Furthermore, Shubani (2010) highlights the significant importance of the Occupational Health and Safety (OHS) concept in the industrial sector compared to universities. As a result, industries are more inclined to implement standardized Occupational Health and Safety Management Systems (OHSMS) than universities. These OHSMS provide a structured approach to managing health and safety with a focus on continual improvement (Shubani, 2010). It is widely believed that effective OHSMS is not only reduce the costs and impacts of accidents and health issues but also enhance employee productivity and efficiency (Shubani, 2010). Hossain (2015) points out that both production and service industries recognize the importance of OHS practices for quality assurance of products and services. Unlike many other industries where the production process and service receivers remain isolated, the production and consumption of university services are directly connected; thus, the quality of education is significantly affected by OHS measures (Hossain, 2015). An incident resulting from a lack of safety practices in a university could have adverse effects on the nation's present and future (Hossain, 2015). However, although safety practices have been examined in various industries, OHS research in academic institutes is comparatively limited. Managing and handling accidents on campuses within the education sector requires great attention (Kashyap, 2015). A university, as an organization directly involved with people (students, employees, lecturers, etc.), must provide educational services in a healthy, safe, and happy environment, which is of utmost importance (Kashyap, 2015). According to Syed-Mohamad (2022), the safety of staff, students, and university assets must be a priority. Workshops and laboratories, for example, have the potential to contribute to accidents (Syed-Mohamad, 2022). Lestari (2019) adds that laboratory researchers and students may be exposed to hazardous and toxic chemicals, making the implementation of the Occupational Health, Safety, and Environment Management System (OHSEMS) a critical aspect of higher education. While universities primarily focus on delivering education, Shubani (2010) warns that health and safety risks could undermine their core mission and objectives. In developing countries, the overall state of OHS at universities is concerning, and research in this area is scarce (Hossain, 2015). Given the critical importance of ensuring a safe educational environment, this study seeks to assess the efficiency of the Occupational Health and Safety Management System (OHSMS) at a South African university. Understanding how well these systems are implemented and identifying areas for improvement will contribute to enhancing the safety and well-being of students, staff, and other stakeholders within the academic community.

1.2 The fundamentals of OHSA

OHSA 85 of 1993 requires an employer to maintain as far as it is reasonably practicable, a workplace that is safe and without risk to the health of employees. This practically means that the employer must ensure that the workplace is free from any hazards that may cause injuries or illnesses. According to Labour Guide (2023), where this is not possible, the employer must inform workers of these dangers, how they may be prevented, how to work safely and provide other protective measures for a safe workplace. Apart from Section 8 of the OHS Act 85 of 1993 which provides the general duties of an employer to their employees, likewise, Section 14 similarly provides the general duties of employees. According to Tshoose (2011), the duty to provide a safe workplace relates to the employer's responsibilities imposed by the common law to ensure that the workplace is reasonably safe, in addition, the employer must provide a safe work system to ensure that the actual mode of conducting work is safe. This is evidence that indeed, the implementation, as well as the success of the health and safety system, is not a sole responsibility of an employer. The two above sections emphasize the need for collaboration between employers and employees to ensure a safe and healthy workplace. According to Ghahramani (2017), a successful health and safety compliance system is founded on the principle that hazards in the workplace must be identified, reported, and addressed consistently. This aligns with Section 8(2)(d) of the Occupational Health and Safety Act (OHS Act 85 of 1993), which mandates employers to identify potential hazards and implement precautionary measures to protect workers' health and safety, as well as Section 14(d), which requires employees to report any unsafe or unhealthy situations to their employers. Consequently, employers and employees share the responsibility of promoting health and safety in the workplace, and both must be proactive in identifying hazards and implementing control measures to reduce the risk of exposure. The existence of a health and safety system is necessary to facilitate this effort (Ghahramani, 2017).

It is important to highlight that OHS Act 85 of 1993 does not provide specifications for managing health and safety at work, however, it does provide clear guidelines on health and safety responsibilities and accountability for the management of health and safety in a workplace (Labour Guide, 2023). This means that the implementation of an Occupational Health and Safety Management System (OHSMS) is at the discretion of an employer. That is, employers are not required by law to implement a health and safety management system

Instead, it is a system that organizations may utilize to regulate and manage health and safety in the workplace. According to ILO-OSH (2001), OHSMS are not legally binding and are not intended to replace national laws, regulations, or accepted standards. According to Myeni (2020), OSHMS certification in South Africa is voluntary. Myeni (2020), further states that there are 14 certification bodies accredited by South African National Accreditation System (SANAS) for occupational health and safety management systems, including ISO 17021-1, OHSAS 18001, and ISO 45001. Furthermore, Myeni (2020) mentions that while companies in the iron and steel sector are mandated to implement OHSAS 18001, the adoption of OHSM systems is generally optional. Enterprises commonly adopt voluntary standards such as ISO 17021-1, OHSAS 18001, and ISO 45001, as stated by Myeni (2020). The South African Bureau of Standards (SABS) has embraced the international ISO 45001 standard, known as SANS/ISO 45001 (Myeni 2020). This standard provides a framework to enhance workplace safety, minimize risks, and promote health and well-being, enabling organizations to proactively improve their occupational health and safety (OSH) performance. According to Myeni (2020), SANS/ISO 45001 was published in March 2018 and offers guidelines for organizations seeking certification as a Conformity Assessment Body (CAB). Myeni (2020) further explains that organizations can approach the South African National Accreditation System (SANAS) for assessment and receive a certificate of accreditation upon meeting the required competence. Organizations had a deadline until September 2021 to transition from Occupational Health and Safety Assessment Series (OHSAS) 18001 to SANS/ISO 45001, as mentioned by Myeni (2020).

Overall, section 16.1 of OHS Act 85 of 1993 mandates that chief executive officers take responsibility for ensuring that the general duties of the employer as contemplated in the OHSA 85 of 1993 are properly discharged. In the context of the institution of Higher Learning, Vice-Chancellors and Rectors are the chief executive officers of institutions, therefore the overall accountability and responsibility for ensuring a safe working environment lies with them. The South African higher education system comprises 26 public universities differentiated into eleven traditional universities, nine comprehensive universities, and six universities of technology. Both the public and private sector is governed in terms of the Higher Education Act 101 of 1997, as amended. Department of Higher Learning and Training (DHET) has developed a Legislation and Policy Register where the Occupational Health and Safety Act 85 of 1993 as well as Compensation for Occupational Injuries and Diseases Act 103 of 1993 (COID Act 103 of 1993) amongst other legislations are listed under general and transversal

legislations which all institutions of higher learning must comply with. In recent years, situations in South African Public Universities have threatened the health and safety of employees and students. These situations range from crime, violent student protests, fires on campuses, depleted infrastructure, road, and traffic risks as well as the COVID-19 Pandemic which remains a serious threat to the health and safety of employees and students. There has been non-compliance with the requirements of health and safety at Public Universities and some of the causes of such incidents are mainly influenced by employee and or students' actions, that is "behavioural-based safety". It is, therefore, at the heart of the study to assess the effectiveness of occupational health and safety systems in selected South African universities.

1.3 Problem statement

Even though universities are meant to deliver education, which is considered fundamental for learning they still need to be recognised as industries which pose health and safety risks to staff and students mainly due to their design and set-up (Ngcece, 2018). According to Subhani (2010), universities can pose a variety of health and safety risks to staff and students, ranging from hazards in the physical environment (e.g., slippery floors, poorly lit stairwells) to exposure to hazardous materials (e.g., chemicals in laboratories) to mental health and wellbeing issues (e.g., stress, burnout). To mitigate these risks, universities must have occupational health and safety management in place and ensure that all staff and students are aware of and adhere to them (Subhani, 2010). They must also conduct regular risk assessments and audits to identify and address any potential hazards (Subhani, 2010). Studies have demonstrated that in instances where the Occupational Health and Safety Management System (OHSMS) is present and effectively implemented, some of the fundamental hazardous causes can be mitigated (Gillen, 2010). However, Rodriguez (2013) bemoans the lack of OHS South Africanspecific research solely focuses on the context of the health and safety of campuses within the universities in the country. In other words, this practically means that the efficiency of the OHSMS the South African universities is understudied. Based on this background the current study seeks to fill the gap that is caused by the lack of OHS studies specific to South African research that solely focus on the context of the occupational health and safety management system of campuses within the universities in the country. According to Rodriguez (2013), the lack of OHS research specific to South African universities and studies which have methodically investigated campus safety are outdated and the focus is on primary/secondary schools. Even more concerning is the lack of safety awareness and promotion on South African

campuses (Rodriguez, 2013) citing Tshabalala (2001), considering that in the education sector, managing and handling accidents on campuses even requires greater attention (Syed-Mohamad, 2022). Therefore, this study is aimed at assessing the efficiency of occupational health and safety systems in South African Universities.

1.4 Research objectives

Research Objectives include:

- A. To determine if an Occupational Health and Safety Management System (OHSMS) is in place at the university.
- B. To identify the roles and responsibilities of stakeholders in the OHSMS implementation and management at the university.
- C. To evaluate how effectively the OHSMS is implemented for managing occupational health and safety at the university.
- D. To determine Occupational Health and Safety documentation compliance.

The current study seeks to answer the following fundamental question:

- 1. Is there an existing Occupational Health and Safety Management System (OHSMS) in place at the university?
- 2. Who are the key stakeholders involved in the implementation and management of the Occupational Health and Safety Management System (OHSMS) within the university, and what are their specific roles and responsibilities?
- 3. What are the specific components and elements of the OHSMS implemented at the university, and how effectively does it manage occupational health and safety?
- 4. How effective is the implementation of the OHSMS in meeting documented standard?

1.5 Study area

The South African higher education system comprises twenty-six (26) public universities differentiated into eleven traditional universities, nine comprehensive universities and six universities of technologies. Both public and private sectors are governed in terms of the Higher Education Act 101 of 1997, as amended under the Department of Higher Learning and Training (DHET). To assess the efficiency of OHSMS at a South African university, this study was conducted at one of South Africa's six (6) universities of technology. Details on how the study was conducted are outlined in the research methodology.

CHAPTER TWO: LITERATURE REVIEW

2.1 The purpose of the literature review

In this research, the literature review chapter begins by discussing the historical background of OHSMS, focusing on relevant standards and guidelines. It further examines the efficiency of OHSMS within South African universities, with a specific emphasis on the role of leadership in ensuring effectiveness, before exploring the factors that influence the efficiency of OHSMS emphasizing the importance of efficiency in occupational health and safety management systems (OHSMS) and promptly introduces the benefits of implementing OHSMS. The chapter addresses the challenges of implementing OHSMS in the South African context and analyses the various factors that impact the efficiency of these systems.

2.2 Background on the importance of Occupational Health and Safety Management System

Throughout history, civilizations have recognized the paramount importance of safeguarding the well-being of workers, prompting the enactment of laws and regulations to address concerns surrounding occupational health and safety (ILO, 2016). According to Kunidzia (2024) the International Labour Organisation (ILO) estimates that more than 2.78 million people die annually because of occupational accidents or work-related ailments. In 2017 alone, over 2.78 million fatalities and 374 million non-fatal injuries were attributed to workplace incidents worldwide, with a noticeable rise in non-fatal workplace injuries since 2010 (Debela, 2021). In the United States, a reported 2.7 million workplace injuries and illnesses in 2020 cost an estimated \$164 billion (Viswanathan, 2024). African countries like Ethiopia, Kenya, Nigeria, Congo, and Rwanda are grappling with significant challenges related to occupational injuries, with prevalence rates ranging from 9.7% to 97.5% in various regions (Debela, 2021). South Africa also faces a substantial burden, with approximately 198,000 workplace injuries and 22,000 cases of occupational diseases reported annually, totalling 220,000 occupational incidents yearly (SHE Risk Specialists, 2024). This high frequency of occupational incidents underscores the prevalence of workplace injuries and diseases in South Africa, posing risks not only to employees' health and safety but also imposing significant financial strains on organizations and the broader economy. In South Africa, the Compensation Fund plays a vital role in providing compensation for disabilities resulting from occupational injuries or illnesses in the country (Parliament of South Africa, 2023). Established under the Compensation for Occupational Injuries and Diseases Act of 1993, the fund ensures that employees receive the necessary support in case of work-related disabilities or fatalities (Parliament of South Africa, 2023). The Compensation Fund's dedication is evident in its annual reports, where numerous employers from various sectors submit Return of Earnings (ROEs) to the Compensation Fund, demonstrating active participation in providing assistance to injured workers (DEL Annual Report, 2023). The fund's disbursement of over R 4 billion in benefits for occupational injuries and diseases further signifies its commitment to aiding affected individuals and their dependents through various support initiatives (Parliament of South Africa, 2023). However, despite these efforts, the ongoing underreporting of occupational incidents remains a hurdle, underscoring the need for enhanced awareness, reporting mechanisms, and preventative measures to ensure the safety and well-being of workers across all sectors in South Africa. While previous endeavours have been made to enhance Occupational Health and Safety (OHS), there has been no significant improvement in overall performance as high-level injuries, risks, and fatalities persist (Kunodzia, 2024). Previous studies have indicated that implementing an Occupational Health and Safety Management System (OHSMS) leads to a reduction in on-site accidents, although challenges during its implementation are prevalent (Kunodzia, 2024). The OHSMS implemented to manage Occupational Health and Safety (OHS), so that a workplace environment is free from undesirable things (Rahmi, 2021). The evolution of OHSMS can be traced back to quality management methodologies, as noted by Karakinas (2021). The introduction of International Organization for Standardization (ISO) 9001 and ISO 14001 standards in the early 1990s prompted discussions on the necessity of an ISO standard for OHSMS (ILO, 2011).

Various OHSMS are available for implementation in organizations (Ligade, 2013). These systems encompass resources such as the HSE Guidance Booklet HS(G)65 "Successful Health and Safety Management," the British Standard BS OHSAS 18001:2007 "Occupational Health and Safety Management Systems-Requirements," and the International Labour Office ILO-OSH-2001 "Guidelines on Occupational Safety and Health Management Systems" (Ligade, 2013). ISO 45001 as a sister standard of ISO 9001 and ISO 14001 was established in February 2018 replacing OHSAS 18001 (Joo, 2024). As of 2021, more than 370000 workplaces were certified as ISO 45001 (Joo, 2024). The framework below (Table 2.1) highlights key milestones, developments, and trends in occupational health and safety management. Various

standards and guidelines have been developed to date for OHSMS, including OHSAS 18001, ILO-OHS-2001 and ISO 45001 (Lee, 2020).

Standard	Mandatory / Voluntary Adoption	Keyelements/Requirements for achievingcompliance	The benefit of adopting the standard or guideline	Reference
OHSAS 18001 - Occupational Health and Safety Assessment Series.	Voluntary standard	Policy, Planning, Implementation and Operational Controls, Checking and Corrective Measures, Management Review	 The primary goal of this standard is to reduce Occupational Health and Safety risks and ensure the safeguarding of human resources. The OHSAS 18001 standard's criteria are structured around the Plan, Do, Check, Act (PDCA) cycle, enhancing its compatibility with various other international standards. Some of the benefits highlighted by Singh (2024) include: Improve image of the institution and credibility. Improve cost control. Use evidence-based decision-making. Create a culture of continual improvement 	Advisera (2019). Ghahramani, (2017). Singh (2024),

 Table 2. 1: Guidelines and standards for OHSMS

ILO-OSH 2001 - Guidelines on occupational safety and health management systems	Voluntary guidelines	Policy, Organizing, Planning and Implementation, Measuring Performance Audit, Management Review	It is designed for use at both organizational and national levels on a voluntary basis. At the organizational level, the guidance advocates for integrating components of OHSMS into the organization's overall policy and management structure. Similarly, at the national level, it promotes the creation of a national framework for OSHSM that is backed by national laws and regulations. The model consists of five key elements: OSH policy, planning, implementation, measurement and evaluation, and management review.	International Labour Organization (2011). Simukonda, (2020).
ISO 45001- International Organization for Standardization (ISO) standard for management systems of occupational health and safety (OHS)	Voluntary Standard	Context of the organization, Leadership, Planning, Support, Operation, Performance Evaluation, Improvement.	The primary purpose of the ISO 45001 standard is to act as a valuable tool for proactively enhancing Occupational Safety and Health (OSH) performance, regardless of the organization's size, type, or nature. ISO 45001 was developed to assist organizations in improving their OSH performance by integrating OSH into their business management systems and processes. Additionally, ISO 45001 highlights the importance of top management's leadership and involvement in OSH management, encourages workers' participation in	Organization for Standardization (ISO) (2023). Joo (2024).

These OHSMS frameworks highlighted on Table 1 are designed to facilitate effective management of health and safety in the workplace, all cantered around the "plan-do-check-act" (PDCA) management model, known for its systematic approach to driving continuous improvement (Ligade, 2013). The PDCA Cycle stands out as a key tool for promoting ongoing enhancement within organizations (Méndez, 2021).

Occupational Health and Safety Assessment Series (OHSAS) 18001:2007

Jones (2018) cited in Karakinas (2021) mentions that in 1991, the British Standards Institution (BSI) introduced Occupational Health and Safety Assessment Series (OHSAS) 18001:2007 as a foundational international standard. OHSAS 18001:2007 was developed to align with ISO 14001 for Environmental Management and ISO 9001 for Quality Management, making it relatively easy for organizations to implement. It quickly became the global benchmark for Occupational Health and Safety Management Systems (OHSMS) (Karakinas, 2021). The main goal of this framework is to facilitate continuous improvement through the Plan–Do–Check–Action (PDCA) cycle, enabling comprehensive enhancements in enterprise health and safety management (Wang, 2020). Since its inception, OHSAS 18001:2007 has been widely adopted in many developed countries. By 2009, 56,250 facilities in 116 countries had obtained OHSAS 18001:2007 certification (Wang, 2020). Major corporations such as Apple, Boeing, HP, and Coca-Cola have achieved OHSAS 18001:2007 management system certification and require the same from their suppliers (Wang, 2020). According to Singh (2024) OHSAS 18001 was a voluntary standard until September 2021 and later transitioned to ISO 45001.

International Labour Organization Occupational Health and Safety Guidelines (ILO-OHS-2001)

The International Labour Organization (ILO) is a specialized agency of the United Nations (UN) established in 1919 with the primary aim of setting standards and policies to promote decent work globally (ILO, 2016). Since its establishment, the ILO has adopted 189 conventions and 204 recommendations to improve working conditions and environments, with a specific focus on advancing Occupational Health and Safety (OSH) principles to reduce workplace accidents and illnesses (ILO, 2016). Additionally, it aims to provide better protection for workers against hazards in challenging work environments. The ILO has developed guidelines for occupational safety and health management systems, such as the ILO-OSH 2001, with the objective of safeguarding workers, improving their well-being, and achieving higher levels of health and safety in the workplace through clearly defined responsibilities for all

stakeholders (ILO, 2016). The voluntary adoption of ILO-OSH 2001 guidelines includes key elements like policy formulation, organizational structure, planning and implementation, performance measurement, audit, and review. These elements help organizations create safer and healthier work environments by effectively managing occupational health and safety risks (ILO, 2011). By embracing these guidelines, organizations not only fulfil their ethical responsibilities but also enhance the well-being and productivity of their workforce (ILO, 2011).

International Organization for Standardization (ISO) 45001

ISO 45001, a voluntary standard from the International Organization for Standardization (ISO), focuses on the organization's context (ISO, 2023). By adopting ISO 45001, organizations improve their reputation, credibility, and compliance with regulations. The standard promotes a proactive approach to occupational health and safety management, fostering a culture of employee engagement and accountability (ISO, 2023). Prioritizing these aspects helps organizations reduce workplace incidents and build trust among stakeholders, leading to a more resilient operational framework (ISO, 2023). As emphasized by Joo (2024), ISO 45001 highlights the importance of leadership involvement from top management in occupational safety and health management, along with active worker participation in safety protocols. It also requires integration of stakeholder needs, including workers, into the organization's operations (Joo, 2024). Similar to other ISO management standards, ISO 45001 follows the Plan-Do-Check-Act methodology, focusing on procedural conformance rather than significant changes and does not impose specific performance requirements (Joo, 2024). The framework presented in Table 1 outlines key milestones, developments, and trends in occupational health and safety management. Various standards and guidelines have been developed to date for Occupational Health and Safety Management Systems (OHSMS), including OHSAS 18001, ILO-OHS-2001, and ISO 45001 (Lee, 2020).

In South Africa, certification in OHSMS is voluntary, with fourteen accredited certification bodies under the South African National Accreditation System (SANAS) offering certification for OHSMS (DEL, 2019). While the iron and steel sector in South Africa is mandated by the Department of Employment and Labour (DEL) to implement OHSAS 18001, other sectors have the choice to adopt OSHMS voluntarily (DEL, 2019). Enterprises in South Africa often adhere to voluntary standards such as OHSAS 18001 and ISO 45001, with the South African Bureau of Standards (SABS) overseeing the development of South African National Standards

(SANS) and adopting the international ISO 45001 standard as SANS/ISO 45001 (DEL, 2019). Organizations seeking accreditation as Conformity Assessment Bodies (CABs) can undergo assessment by SANAS, which issues a certificate upon confirming their competence (DEL, 2019). Organizations previously using OHSAS 18001 had until September 2021 to transition to SANS/ISO 45001 (DEL, 2019). Therefore, the development of OHSMS has been shaped by international standards, with a global trend towards adopting ISO 45001 as a unified system for occupational health and safety management. While certification remains voluntary in many countries, it enables organizations to showcase their commitment to workplace safety and compliance with recognized standards.

2.3 The overview of Health and Safety in the university setting

The South African higher education system comprises twenty-six (26) public universities, categorized into traditional universities (eleven), comprehensive universities (nine), and universities of technology (six) (DHET, 2023). Governance of both the public and private sectors falls under the Higher Education Act (101 of 1997). The latest South African statistics indicate that about 57,507 academic employees are involved in teaching and research (ChaaCha, 2023). In 2019, the combined enrolment at 26 public universities and 131 private institutions amounted to 1,283,890 students, highlighting a disparity between the number of enrolled students and academic staff (ChaaCha, 2023).

Despite their primary role in delivering education, universities are recognized as industries that present health and safety risks to staff and students due to their design and structure (Ngcece, 2018). As highlighted by Subhani (2010), universities can present various health and safety risks, encompassing hazards in the physical environment (e.g., slippery floors, poorly lit stairwells), exposure to hazardous materials (e.g., chemicals in laboratories), and mental health challenges (e.g., stress, burnout). Ahmad (2022) further asserts that High Education Institutions (HEIs) encounter Occupational Health and Safety (OHS) challenges, ranging from traditional infrastructural and environmental hazards such as ventilation and electrical risks to hazards posed by laboratory chemicals and animal facilities on campus. Addressing these challenges necessitates the implementation of robust OHS practices and adherence to safety regulations to ensure a safe and healthy learning and working environment within HEIs (Ahmad, 2022). A study by Farrukh (2019) revealed that in many Pakistani universities, OHS practices fall below acceptable standards (Ahmad, 2022). Recent incidents have drawn the attention of

concerned authorities, policymakers, and the government, prompting Higher Education Institutions (HEIs) to implement OHS practices in their workplaces (Ahmad, 2022). Consequently, HEIs in Pakistan are under pressure from regulatory bodies, national and international organizations, and other stakeholders to enhance their physical environment in terms of OHS practices to achieve recognition as sustainable organizations (Ahmad, 2022). In light of these circumstances, HEIs face pressing questions: How can they effectively adopt OHS practices? What internal and external factors contribute to successful OHS adoption? And what are the outcomes of successful OHS adoption that led to sustainable HEIs? Unfortunately, existing research has not provided satisfactory answers to these questions (Ahmad, 2022). In a study conducted in South Africa, Rodriguez (2013) acknowledges safety risks as a significant concern within South African Tertiary Education Institutions (TEIs). Despite this acknowledgment, the study emphasizes the importance of unintentional injuries, which include accidents and incidents related to traffic, as crucial safety risks that could potentially lead to fatalities within the university setting. Rodriguez (2013) refers to a specific investigation carried out by Van Rensburg (2002), which focused on unintended traffic-related injuries involving students at the University of South Africa (UNISA)'s Muckleneuk campus. The study revealed a notable proportion of participants encountering challenges while crossing roads surrounding the campus. Additionally, Rodriguez (2013) highlights a study by Bozsik (2010) that identified fires and incidents of electrocution as significant risk factors in educational environments. The study notes the occurrence of 93 fires reported in South African educational institutions during 2009, with approximately 8% of these fires attributed to electrical causes. The malfunction of electrical equipment, including extension cords and appliances, emerged as principal factors contributing to these occurrences. Rodriguez concluded that although there is limited existing research on campus safety in South Africa, the reviewed research indicates that campus safety is a valid and important concern that needs to be explored. On the other hand, Subhani (2010) brings attention to the widespread occurrence of accidents within laboratory settings, emphasizing that events within these laboratories bear significant importance, possibly leading to injuries or, in specific cases, even fatalities among both students and instructors. To mitigate these risks, appropriate controls must be put in place to prevent further occurrences of such events (Labour Guide, 2023). In other words, an incident investigation must be performed to find out what happened, why it happened, and identify ways to prevent it from happening again. This forward-thinking methodology aligns with the provisions of the Occupational Health and Safety (OHS) Act (85 of 1993) (Labour Guide, 2023).

The OHS Act 85 of 1993 as amended, is the main Act that governs Occupational Health and Safety (OHS) in practically all sectors in South Africa other than the mines (DEL, 2019). OHS Act 85 of 1993 requires an employer to maintain as far as it is reasonably practicable, a workplace that is safe and without risk to the health of employees (Labour Guide, 2023). Section 8 of the OHSA stipulates the general duties of employers to their employees (DEL, 2019). Section 8(1) clearly stipulates that the employer is obligated to provide and maintain a workplace that is safe and without risk to the health of their employees (Labour Guide, 2023). Section 16 of the same act deals with the proper delegation of health and safety duties. The legislator starts with the person" who is responsible for the overall management and control" of the business or body corporate, the Chief Executive Officer, or Managing Director (Labour Guide, 2023). This appointment is referred to as the section 16(1) appointee. The Chief Executive Officer or Managing Director of the organization is the person that is responsible for assigning health and safety duties to the rest of management under his or her control (Labour Guide, 2023).

As per May (2019), leadership holds significant importance in accident prevention. Clarke (2018) further suggests that the decision-making and resource allocation by leaders contribute to shaping the organizational safety culture, establishing an environment that mirrors the organization's commitment to safety. As accident prevention is known as an umbrella term that encompasses all steps taken by an entity to reduce the risk of accidents, to save lives, and to mitigate the risks of injury or to lessen its severity thus maximizing safety (Clarke, 2018). The objective of May (2019) study was to assess leadership in occupational safety through a case study approach. The study employed the seven steps of leadership and worker involvement training methodology and gathered data through diagnostics, training sessions, structured interviews, accident monitoring, and statistical analysis. The findings revealed that assertive leadership behaviour has a positive impact on occupational safety management. This type of leadership resulted in a significant reduction of over 50% in accidents that has previously resulted in injuries (May, 2019). Based on these results, the study concludes that there is a correlation between safety leadership behaviour and a decrease in the occurrence of accidents. Effective safety leadership, characterized by assertiveness and proactive measures, is crucial for enhancing occupational safety and reducing the likelihood of workplace accidents (May, 2019).

In the context of the institution of Higher Learning in South Africa, Vice-Chancellors and Rectors are the Chief Executive Officers (CEO) of institutions, therefore the overall accountability and responsibility for ensuring a safe working environment lies with them as stipulated in section of the OHSA 85 of 1993. This aligns with information from the University of Cape Town's Human Resources webpage, which emphasizes that the Occupational Health and Safety Act imposes specific and precise obligations on the University's Vice-Chancellor. The Vice-Chancellor is entrusted with the task of ensuring full compliance with the Act's provisions (OHS Act 85 of 1993). Therefore, effective leadership, particularly entrusted to Vice-Chancellors, is crucial for ensuring workplace safety and health, as emphasized by May (2019). These leaders must prioritize the well-being of employees and stakeholders not only to meet legal obligations but also as a moral duty and for the institution's success. Additionally, Vice-Chancellors are empowered by the Act to delegate duties while retaining responsibility and liability (May, 2019). Consequently, leadership safety behaviours, including safety management commitment, play a vital role in organizational safety programs, as noted by Zhang (2022). On the other hand, Ghahramani (2017), states that a successful health and safety compliance system is founded on the principle that hazards in the workplace must be identified, reported, and addressed consistently. This aligns with Section 8(2)(d) of the Occupational Health and Safety Act (OHS Act 85 of 1993), which mandates employers to identify potential hazards and implement precautionary measures to protect workers' health and safety, as well as Section 14(d), which requires employees to report any unsafe or unhealthy situations to their employers. Consequently, employers and employees share the responsibility of promoting health and safety in the workplace, and both must be proactive in identifying hazards and implementing control measures to reduce the risk of exposure. The existence of a health and safety system is necessary to facilitate this effort (Ghahramani, 2017).

It is worth noting that legislation on occupational health and safety in South Africa is enforceable, however, there are voluntary technical standards that are reliable references, whilst not legally enforceable, industries recognize, and adopt to be part of their occupational health and safety management system (DEL, 2019). It is important to highlight that OHS Act 85 of 1993 does not provide specifications for managing health and safety at work, however, it does provide clear guidelines on health and safety responsibilities and accountability for the management of health and safety in a workplace (Labour Guide, 2023). This means that the implementation of an Occupational Health and Safety Management System (OHSMS) is at the discretion of an employer. In essence, employers are not required by law to implement a health and safety management system instead, it is a system that organizations may utilize to regulate and manage health and Safety Management Systems (OHSMS) do not carry legal obligations and are not designed to replace national laws, regulations, or accepted standards. In the context of South Africa, DEL (2019) confirms that OSHMS certification is of a voluntary nature. DEL (2019) goes on to indicate that there exist 14 certification bodies accredited by the South African National Accreditation System (SANAS) for overseeing occupational health and safety management systems, encompassing standards like OHSAS 18001 and ISO 45001amongst others. Furthermore, DEL (2019) highlights that while some companies within certain sectors such as iron and steel are obligated to implement OHSAS 18001, the adoption of OHSMS is generally left to the discretion of organizations.

2.4 Efficiency of implementing OHSMS at the university

In the assessment of OHSMS effectiveness in universities, it is evident that these institutions, despite their core function of education delivery, pose significant health and safety risks to both staff and students due to their structural design (Ngcece, 2018). These risks encompass various hazards such as slippery floors, poorly lit stairwells, exposure to hazardous materials in laboratories, and mental health challenges like stress and burnout (Subhani, 2010). Ahmad (2022) highlights that Higher Education Institutions (HEIs) face a range of infrastructure and environmental risks, including those associated with laboratory chemicals and animal facilities. To address these risks, robust OHS practices and adherence to safety regulations are crucial to fostering a safe and healthy environment. However, Farrukh (2019) reveals subpar OHS practices in many Pakistani universities, prompting calls from regulatory bodies and stakeholders for improvements in OHS protocols within HEIs (Ahmad, 2022). Similarly, in South Africa, safety concerns are significant, with studies identifying issues such as unintentional injuries, traffic accidents, fires, and electrocutions in educational settings (Rodriguez, 2013).

According to Subhani (2010), many universities are striving to improve the health and safety of their employees and students by developing OHS-based activities such as having a procedure for the prevention of ill-health or injuries or conducting OHS awareness programs. However, simply having these activities is insufficient without a system to ensure their performance and effectiveness. Current OHS efforts at universities can meet many requirements outlined in various OHSMS standards and guidelines. The potential for implementing an OHSMS in universities is promising, requiring only commitment and some effort to develop standardized OHSMS for a better working environment (Subhani, 2010). OHSMS have garnered global recognition for their remarkable adaptability, offering tailored solutions to businesses of diverse

sizes and types in effectively managing workplace safety concerns (Musungwa, 2022). Concurrently, certain companies strategically implement OHSMS to mitigate lost workdays, reduce workplace accidents, and cut costs associated with occupational illnesses (Wang, 2020). Delving deeper into the realm of OHSMS, Sullivan (2023) advocates for the skilful integration of OHSMS within an overarching framework to enhance a company's capacity to proactively address workplace hazards and minimize expenses related to occupational injuries, illnesses, and fatalities.

To gauge the efficiency of OHSMS implementation, Rahmi (2021) undertook a comprehensive study aimed at identifying the critical factors contributing to the successful integration of OHSMS. Through an extensive literature review spanning a decade, Rahmi (2021) unearthed a complex interplay of internal and external factors that significantly influence the effectiveness of OHSMS. These factors encompass a broad spectrum, including management commitment, leadership quality, employee engagement levels, prevailing safety culture, resource availability, financial performance metrics, company size dynamics, incentive structures, communication strategies, procedural frameworks, and risk control strategies, all of which play pivotal roles in shaping the efficacy of OHSMS within organizational settings. Kunodzia (2024) delves deeper into the complex network of internal and external factors influencing the adoption of Occupational Health and Safety Management Systems (OHSMSs), particularly within the construction sector. Internally, Kunodzia (2024) highlights the importance of factors such as management commitment, OHS policies, cost allocation, company size, training, employee involvement, culture, communication, regulations, procedures, system integration, and uncertainties in reporting systems in shaping OHSMS implementation. Externally, Kunodzia (2024) points out that factors like the enforcement of OHS regulations, support from authorities, auditing practices, and external incentives also play critical roles in influencing OHSMS implementation. Mappangile (2022) conducted a study on factors associated with the effectiveness of occupational health and safety program performance, revealing diverse factors categorized into personal, work environment, technical, and organizational groups (Mappangile, 2022). These factors collectively have a significant impact on the efficiency of occupational safety and health programs, with addressing them enabling organizations to enhance safety performance and cultivate healthier work environments (Mappangile, 2022). In a study by Karakavuz (2017) focusing on factors contributing to the success of Occupational Health and Safety Management Systems in ground-handling firms in Turkey, various factors were identified, including a positive safety culture, senior management support, stakeholder attitudes and traits, OHSMS practices, and the role of OHS professionals (Karakavuz, 2017).

The research underscored the pivotal roles of senior management commitment, organizational dedication to safety, support from senior management in human resource allocation for OHSMS implementation, pressures from stakeholders, and the quality and quantity of OHS training as critical success determinants (Karakavuz, 2017). These studies collectively highlight several common factors crucial for the effectiveness of OHSMS implementation, such as management commitment, robust OHS policies and procedures, active employee involvement and engagement, fostering a strong safety culture, regulatory compliance, providing adequate training, resource allocation, effective communication channels, continuous improvement initiatives, and external support and stakeholder involvement. Addressing these factors comprehensively underscores the multifaceted nature of OHSMS implementation, emphasizing the need for a comprehensive approach to effectively address various aspects and ultimately contribute to improved occupational safety and health outcomes. Kineber (2023) indicates that numerous obstacles hinder the adoption of OHSMSs, with a significant challenge being the lack of awareness about systems like OHSMSs, serving as a crucial barrier to their implementation due to insufficient economic and informational resources within companies (Kineber, 2023). Liu (2023) research on barriers hindering the effectiveness of ISO 45001 certification within Chinese-certified organizations highlights factors such as employees' lack of awareness or adverse attitudes towards occupational health and safety, absence of a safety culture, insufficient employee participation, inadequate internal motivation, lack of top management's commitment and support, deficiencies in OHS policy, financial resources within an organization, and obstacles posed by certification organizations as fundamental factors significantly influencing various aspects during the OHSMS implementation process (Liu, 2023). The study by Garnica (2018), focuses on small Brazilian enterprises, aimed to identify primary obstacles in implementing OHSMS, revealing differing viewpoints among stakeholders regarding challenges encountered during implementation. While owners and managers tended to attribute obstacles to employees and governmental entities, external factors like labour auditors and OHS consultants ascribed them to management and resource allocation. However, stakeholders reached a consensus on critical barriers, including inappropriate management conduct, ineffective information and communication practices, and prioritization of production over safety, which have substantial implications for theoretical understanding and practical application. Overcoming these barriers is crucial not only for seamless OHSMS implementation but also for enhancing overall management conditions in small-scale businesses, ultimately leading to safer work environments and improved operational management (Garnica, 2018). In conclusion,

Occupational Health and Safety Management Systems (OHSMS) are globally recognized for their adaptability and effectiveness in addressing workplace hazards. These systems, tailored to businesses of all sizes, aim to reduce accidents, injuries, and health risks while enhancing overall safety protocols. Studies by Sullivan (2023) and Rahmi (2021) emphasize the crucial role of factors like management commitment, employee engagement, and regulatory compliance in optimizing OHSMS efficiency. Additionally, Kunodzia (2024) highlights both internal and external factors such as training, communication, and regulatory enforcement as critical determinants of successful OHSMS implementation, particularly within the construction sector. Despite their potential benefits, barriers to OHSMS adoption persist, as evidenced by Kineber (2023), Liu (2023), and Garnica (2018). These barriers include lack of awareness, insufficient resources, and organizational resistance, underscoring the need for proactive measures to overcome such challenges. By comprehensively addressing these factors and barriers, organizations can cultivate safer work environments and enhance overall occupational health and safety outcomes.

According to ILO (2011), the application of OHMS is based on relevant occupational safety and health (OSH) criteria, standards, and performance. It aims at providing a method to assess and improve performance in the prevention of workplace incidents and accidents via the effective management of hazards and risks in the workplace (ILO, 2011). It is a logical, stepwise method to decide what needs to be done, how best to do it, monitor progress toward the established goals, evaluate how well it is done and identify areas for improvement (ILO, 2011). It is and must be capable of being adapted to changes in the business of the organisation and to legislative requirements. In this study, an in-depth examination was undertaken to evaluate the efficacy of Occupational Health and Safety Management Systems (OHSMS) within South African universities. The research methodology involved a thorough examination of the websites of all South African public universities to evaluate the content of their respective Occupational Health and Safety Policy Statements. The primary objective of this research was to examine the content of Occupational Health and Safety (OHS) Policies in line with the criteria of OHSAS 18001, with a specific focus on the OHS policy. Stojanovic (2015) emphasizes the importance of having a documented OHS Policy as a key requirement specified in the OHSAS 18001 standard. Additionally, Stojanovic (2015) underscores that the OHS Policy delineates the fundamental principles and guidelines governing the organization's approach to occupational health and safety. As per the stipulations of OHSAS 18001, the OHS Policy statement should be initiated by top management, serving as a foundational directive for how all employees within the organization should adhere to occupational health and safety
practices. This is where the company's commitments to managing and improving occupational health and safety standards are articulated (Stojanovic, 2015). On the other hand, the South African OHS Act 85 of 1993 mandates companies to develop a health and safety policy under the guidance of chief inspectors (Machabe, 2013). Section 7 of the OHS Act underscores the importance of the SHE policy in protecting the health and safety of employees in the workplace (Machebe, 2013). Furthermore, the act specifies that the CEO must approve this policy, clearly outlining the company's dedication, responsibilities, and accountability for promoting health and safety in the workplace (Machebe, 2013). While the creation and implementation of an OHS Policy under Section 7 of the OHS Act 85 of 1993 may not be mandatory for all organizations, employers are still responsible for educating their workforce about potential workplace risks and hazards, as well as communicating preventive measures against these risks (Labour Guide, 2023). Therefore, the adoption of a health and safety policy plays a crucial role in fulfilling this obligation, emphasizing the importance of work-related policies and procedures, as per the (Labour Guide, 2023). Consequently, this study examined the content of the OHS Policy statements of the 26 South African Universities.

This study rigorously analysed the key components outlined in an OHS Policy Statement. These essential elements were derived from the guidelines outlined by Labour Guide (2023) as well as Stojanovic (2015). Both Labour Guide (2023) and Stojanovic (2015) cover essential elements for an effective OHS policy, including legal compliance, safety commitment, management responsibility, continual improvement, and communication. However, Labour Guide (2023) provides additional details such as an organizational overview, specific health and safety principles, general responsibilities, policy issuance date, and CEO's signature, which are not explicitly covered by Stojanovic (2015). Despite these differences, the core principles advocated by both authors align closely, emphasizing a comprehensive and committed approach to occupational health and safety.

Among the 26 public universities in South Africa, 11 universities demonstrated a strong commitment to maintaining occupational health and safety standards by developing robust Occupational Health and Safety Policy Statements. The subsequent synthesis of these policy statements was carefully crafted by employing the "Plan Do Check Act" Cycle (PDCA) methodology, as recommended by Sullivan (2023). Sullivan (2023) breaks down the PDCA cycle into four key steps: Plan, Do, Check, and Act, each playing a vital role in the iterative process of enhancing OHSMS performance. This concept of the "Plan-Do-Check-Act" Deming Cycle (PDCA), designed in the 1950s to monitor business performance on a continual basis (ILO, 2011). When applied to Occupational Safety and Health (OSH), "Plan" involves the

setting of an OSH policy, planning including the allocation of resources, provision of skills and organisation of the system, hazard identification and risk assessment. The "Do" step refers to actual implementation and operation of the OSH programme. The "Check" step is devoted to measuring both the active and reactive performance of the programme. Finally, the "Act" step closes the cycle with a review of the system in the context of continual improvement and the priming of the system for the next cycle (ILO, 2011). The PDCA cycle, is recognized as a framework for continual process improvement, steers organizations through a systematic approach of planning actions, executing them, assessing their alignment with the plan, and making corrective actions based on feedback, Sullivan (2023). Moreover, Nolan (2015) highlights the significant role of the PDCA cycle in ISO 9001, 14001, and 45001 standards, stressing its importance in the realm of OHSMS. Notably, Kunodzia (2024) observes that the construction industry frequently utilizes the PDCA model to monitor and implement OHSMS continuously, providing a structured framework for improvement strategies and enabling adjustments to project plans based on evolving insights. A comprehensive summary detailing the meticulous application of the Plan-Do-Check-Act (PDCA) cycle during the development of the OHS Policy in the universities under review is presented in Table 2.2 for reference and detailed examination.

		Key Elements (Den	ning Cycle)			
University	Policy Overview	Plan(HazardIdentification andRisk Assessment)	Do (Operational Controls)	Check (Monitoring and Evaluation)	Act (Continual Improvement)	Reference
	University A's health and					
	safety statement emphasize					
	its proactive role in			The unit	The unit's focus on	
	safeguarding the well-being	The unit identifies	The unit provides	continuously	striving towards	
	of the university community	and assesses	clear instructions to	provides competent	environmental	
University	through hazard	health safety and	employees and	advice and support	sustainability and its	University
А	identification, risk	anvironmental	students regarding	to all stakeholders	dedication to	A (2023).
	assessment, the	hozorda/riaka	safe working	on the	achieving the	
	implementation of safety	liazaius/lisks.	procedures	implementation of	university's vision of	
	measures, compliance with			OHSMS	2030	
	regulations, and a					
	commitment to					

Table 2. 2: Application of the PDCA Cycle in Developing University Occupational Health and Safety Policy

es	environmental sustainability.					
University B T t t t s	University B's health and safety statement emphasizes the university's commitment to safety, health, and the environment, outlining the roles and responsibilities of the SHE Unit and the steps taken to ensure compliance, leadership, and a culture of safety and well-being.	The statement mentions the commitment to provide a work and learning environment that is safe and without risk to health, as prescribed in the Occupational Health and Safety Act 85 of 1993 and its Regulations.	The unit's responsibilities also include providing guidance in conducting Hazard Identification and Risk Assessment (HIRA): This reflects the implementation of control measures through risk assessment.	The unit is charged with ensuring that all incidents and accidents are reported, recorded, and investigated: This aligns with the "Check" step's focus on monitoring, reporting, and evaluating.	Developing, Implementing, and Maintaining SHE Procedures suggests an ongoing commitment to refining processes and ensuring an effective SHE Management System, in line with the "Act" step's emphasis on improvement.	University B (2023).

		"Plan" step's focus on understanding risks and ensuring a safe environment.				
University C	University C policy underscores its commitment to complying with legal regulations, proactively managing risks, promoting safety standards, involving staff in safety initiatives, and ensuring a safe and healthy working and	Mentionofconducting hazardidentificationandriskassessmentindicatestheintentiontoimplementtoprocessestoidentify and assessrisks.	The commitment to ensuring that VUT staff serve as appropriate role models for students and promote health, safety, and environmental standards: This suggests the	Thestatementindicatesacommitmenttomonitortheeffectivenessofhealth, safety, andenvironmentaltheprovisionsinconsultationwithmanagementand	The intention to encourage worker participation in the management and performance of business indicates a proactive approach to continuous improvement.	University C (2021).

		1				
	learning environments for		implementation of	health and safety		
	all.		control measures by	representatives: This		
			involving staff as	aligns with the		
			role models and	"Check" step's focus		
			promoting safety	on monitoring and		
			standards.	evaluating.		
	The policy emphasizes the	The commitment	The commitment to	XX71 1 .1		
	University's commitment to	to ensuring the	comply with the	While the statement	The statement's goal	
	creating a safe and healthy	health, safety, and	regulations and	does not explicitly	of ensuring the health,	
	working environment for all	welfare of all staff,	conditions set out in	mention monitoring	safety, and welfare of	
	members of its community.	students.	the Occupational	or evaluation, the	all members of the	
University	It recognizes the importance	mandataries	Health and Safety	emphasis on	University	University
D	of individual and collective	(agents	Act 85 of 1993	compliance with	community suggests a	C(2023)
D	responsibility sets	contractors or	(OHS Act) indicates	regulations suggests	continuous	C (2025).
	responsionity, sets		(OTIS Act) indicates	the importance of	improvement	
	expectations for managers	subcontractors),	an intention to	checking adherence	approach by	
	and heads of departments,	and visitors	implement legal	to legal	prioritizing ongoing	
	and underscores the	indicates the	requirements and	requirements.	well-being.	
	university's intention to	intention to	control measures.	*	e e	

	comply with relevant	understand risks				
	regulations to ensure the	associated with the				
	well-being of all	working				
	stakeholders.	environment. This				
		aligns with the				
		"Plan" step's focus				
		on identifying				
		potential hazards				
		and risks.				
	University E's OHS policy	The commitment	The mention of	The statement's	The commitment to	
	prioritizes the protection of	to design and	instruction in health	emphasis on	eliminating actions	
	its stakeholders and	implement	and safety as part of	promoting	and work procedures	
	property through the	practicable health	training. academic	awareness programs	that are unhealthy and	
University	implementation of practical	and safety	programs, and	for employees' and	unsafe reflects a	University
E	health and safety standards.	standards reflects	induction of visitors	students' interest and	continuous	E (2020).
	education. shared	the intention to	and contractors:	involvement in	improvement	
	responsibility. awareness	address risks and	This demonstrates	health and safety	approach, focusing on	
	promotion, risk elimination.	hazards through	the implementation	suggests a focus on	eliminating potential	
	and adherence to statutory	control measures.	of control measures	monitoring and	hazards and risks.	

requirements. The policy's		through education	evaluating safety		
multi-faceted approach		and training.	culture and		
aims to create a secure and			awareness.		
conducive environment for					
work and learning.					
University F's OHS policy	The statement's		While the statement	The commitment to	
accidents, promoting risk-	accidents and	The commitment to	does not explicitly mention monitoring	occupational health	
free tasks, emphasizing management responsibility.	unhealthy work environment can	eliminate unhealthy and unsafe acts and	or evaluation, the	and safety of employees and those	
University fostering shared	be prevented aligns	conditions indicates	emphasis on creating and maintaining a	affected by business	University
F responsibility, and creating	with the "Plan"	a focus on	healthy and safe	activities reflects a	F (2023).
a safe work environment. The policy encompasses	step's focus on identifying and	implementing control measures to	place to work suggests the	continuous improvement	
various commitments to train employees, eliminate unsafe conditions, promote	understanding risks to prevent incidents.	address hazards.	importance of regularly checking	perspective by emphasizing ongoing protection.	

	contractor compliance, and			the workplace		
	ensure the health and safety			environment.		
	of all stakeholders.					
University G	University G's OHS policy prioritizes safety, health, and welfare through compliance with regulations, collaboration, responsibilities for both management and employees/students, setting objectives, exceeding legal requirements, and ensuring sufficient resources are	The statement emphasizes the commitment to removing or reducing risks to the health, safety, and welfare of various stakeholders. This aligns with the "Plan" step's focus on identifying and	The responsibilities assigned to Management to provide a safe working environment, safe systems, maintained plant and substances, and information/training for safety indicate	The mention of commitment to consult and collaborate with employees, students, and contractors suggests a focus on monitoring and evaluating practices and involving stakeholders in the "Check" step.	The policy's objective to achieve high occupational health, safety, and welfare standards and a continual improvement of occupational health and safety performances reflects a commitment to	University G (2023).

	allocated for compliance	understanding	the implementation		continuous	
	and continual improvement.	risks.	of control measures.		improvement.	
University H	The University's Facilities Maintenance Services OHS policy is focused on creating a safe and healthy working environment through resource allocation, compliance with regulations, effective management systems, education, and adherence to high health, safety, and welfare standards.	The commitment to ensure a working environment that is safe and without risk to health aligns with the "Plan" step's focus on identifying and understanding risks.	The commitment to provide safe working conditions, systems of work, workshops, machinery, information, training, and appropriate equipment demonstrates the intention to implement control	The policy's intention to maintain high standards of health, safety, and welfare in all activities suggests the importance of monitoring and evaluating these standards	The commitment to annually review this policy statement and the systems in place to ensure their effectiveness reflects a continuous improvement approach by focusing on evaluating and enhancing the systems.	University H (2023).

			measures			
			throughout the			
			organization.			
			The commitment to			
	The University's OHS	The commitment	educate staff on	The policy's	The commitment to	
	policy underscores its	to provide and	OHS risk	intention to measure	ensure a consistent	
	commitment to providing a	maintain a working	management and	occupational health	approach to the	
	safe, healthy, and secure	environment that is	occupational health	and safety	management of OHS	
	environment for all	safe and without	and safety	performance and	issues across the	TT.::::
University I	individuals within its	risk to the health of	principles	ensure quality	university reflects a	University
	community, and to	employees and	demonstrates the	control suggests a	continuous	1 (2019).
	continuously improve its	others reflects the	intention to	focus on monitoring	improvement	
	OHS performance while	intention to plan	implement control	and evaluating	approach by focusing	
	complying with relevant	for control	measures through	safety practices and	on uniformity and	
	regulations and standards.	measures.	education and	performance.	standardization.	
			training.			
	The University's policy	The commitment	The policy's	The policy's	The policy's goal to	
University J	reflects a comprehensive	to provide and	emphasis on	commitment to	maintain a condition	T Tes in source ites
	approach to health, safety,	maintain a healthy,	conducting risk	maintaining the	that is safe and	
	and environmental	safe, and risk-free	assessments and	OHS&E	without risks to health	J (2020).
	management, aiming to	working and	OHS&E	Management	and safety, and to	

	create a secure and	learning	audits/inspections	System performance	provide and maintain	
	sustainable environment for	environment aligns	indicates a proactive	under continuous	means of access and	
	all stakeholders.	with the "Plan"	approach to	management review	egress reflects a	
		step's focus on	implementing	and implementing	continuous	
		identifying and	control measures	improvements	improvement	
		understanding	through assessment	reflects a focus on	approach by focusing	
		risks.	and review.	monitoring,	on maintaining and	
				evaluating, and	improving safety	
				continuous	conditions.	
				improvement.		
University K	University K's OHS policy emphasizes collaboration, shared responsibility, commitment to safety, and compliance with relevant regulations to create a secure environment for employees, students, and visitors.	The statement's emphasis on bringing about and maintaining a safe work environment aligns with the "Plan" step's focus on identifying and understanding risks.	The commitment to provide other protective measures for a safe workplace reflects the intention to implement control measures.	The statement does not explicitly mention monitoring or evaluation, but the commitment to constituting a health and safety committee suggests a form of monitoring and collaboration.	The policy's goal to provide and maintain a safe workplace and operate a residence system for employees and students, and to provide information, instruction, training, and supervision reflects a continuous improvement	University K (2023).

		approach by focusing	
		on maintaining a safe	
		environment and	
		enhancing safety	
		practices.	

All universities analysed exhibit strong alignment with the guidelines for developing an OHS policy provided by Labour Guide (2023) and Stojanovic (2015). Each university demonstrates a commitment to compliance, risk prevention, management responsibility, communication, and continuous improvement. However, some universities lack explicit statements on certain elements, such as communication (University D and University F) and monitoring (University K), which are critical for a comprehensive OHS policy. Overall, the universities OHS Policies broadly align with the recommended guidelines, ensuring a proactive approach to occupational health and safety management. According to Subhani (2010), the importance of health and safety is undeniable. Merely having procedures to prevent ill-health or incidents is not sufficient. It is crucial to promote, raise awareness, monitor, and continuously improve these activities (Subhani, 2010). OHSMS provide a structured approach for carrying out all OHSrelated activities while also fostering continual improvement. However, simply adopting an OHSMS is not enough; active participation and involvement of stakeholders are necessary to keep the OHSMS operational (Subhani, 2010). Many universities are striving to improve the health and safety of their employees and students by developing OHS-based activities. However, these activities alone are insufficient without a system to ensure their performance and effectiveness. Current OHS efforts at universities can meet many requirements outlined in various OHSMS standards and guidelines. The potential for implementing an OHSMS in universities is promising, requiring only commitment and effort to develop standardized OHSMS for a better working environment (Subhani, 2010).

The information regarding the alignment of university policies with the Plan-Do-Check-Act (PDCA) cycle is based on guidelines provided by the International Labour Organization (ILO, 2011).

- Risk Identification and Assessment (Plan): All universities recognize the importance of identifying and understanding potential hazards and risks within their working and learning environments. This includes conducting hazard identification and risk assessment to proactively manage these risks.
- Operational Controls (Do): Universities implement operational controls through various means such as establishing safety standards, providing training and instruction, promoting safe working procedures, and ensuring that employees and students are equipped with the necessary information and resources to work safely.
- Monitoring and Evaluation (Check): Monitoring and evaluation play a crucial role in OHS policies. Universities emphasize the importance of regular checks, reporting

incidents and accidents, conducting inspections, and engaging stakeholders through committees and collaborations to ensure ongoing compliance and effectiveness.

• Continuous Improvement (Act): All universities express a commitment to continuous improvement by striving to exceed legal requirements, promoting a safety culture, and allocating resources for ongoing enhancements to their OHSMS.

In conclusion, despite shared themes, each university's policy mirrors its distinct institutional culture, priorities, and objectives. Some policies specifically mention their commitment to environmental sustainability, while others stress compliance with legal obligations. Additionally, policies differ in how they emphasize engagement, collaboration, and shared responsibility among all stakeholders to create a safe and healthy environment. The policies highlight the universities' dedication to establishing an environment where health and safety are paramount. They aim not only to meet legal requirements but also to nurture a safety culture, proactive risk management, and continual improvement. The diversity in approach reflects the universities' efforts to align their OHS policies with their respective missions, visions, and values, while also ensuring the well-being of their entire community.

2.5 Challenges of implementing Occupational Health and Safety Management System (OHSMS) in the South African Context

As outlined by Lui (2023), the adoption of an OHSMS is increasingly perceived by organizations as a systematic approach to managing OHS risks and opportunities, with the aim of advancing their sustainability goals. Nonetheless, there remains a lack of consensus regarding the effectiveness of various certified OHSMSs, including ISO 45001, in achieving their intended objectives. Lui (2023) research reveals that crucial factors such as employees' limited awareness or negative perceptions of OHS, absence of a robust safety culture, and inadequate employee engagement are significant considerations. Furthermore, the study suggests that insufficient internal motivation, lack of commitment and support from top management, absence of comprehensive OHS policies, inadequate financial resources, and challenges posed by certification bodies serve as fundamental and pervasive factors that can impact other aspects of the OHSMS implementation process (Lui, 2023). Additionally, Lui (2023) proposes that these findings can provide valuable direction for a range of stakeholders, including organizations, third-party certification bodies, and government regulatory agencies, to formulate and execute effective measures aimed at improving the efficacy of ISO 45001 certification, consequently bolstering an organization's sustainable development strategy. Moreover, Lui (2023) research underscores that the efficacy of ISO 45001 certification is shaped by a multitude of interconnected factors, with obstacles from certification bodies exerting a primary impact. Furthermore, Lui (2023) stresses the pivotal influence of top management's commitment and support, which can significantly affect various implementation barriers.

In a South African context, Kunodzia (2024) investigation, which aims to prioritize factors influencing the implementation of Occupational Health and Safety Management Systems (OHSMS) on construction sites and analyse its application in South Africa's Western Cape construction industry using the Plan Do Check Act (PDCA) method, it is highlighted that despite previous efforts to improve Occupational Health and Safety (OHS), significant advancements remain elusive, with persistent occurrences of severe injuries, risks, and Kunodzia (2024) acknowledges earlier research suggesting that while the fatalities. implementation of OHSMS can potentially reduce on-site accidents, its execution encounters various challenges. Kunodzia (2024) study identifies both internal and external factors influencing implementation. Internally, crucial elements include risk management strategies, commitment from senior management, and communication channels, while external influences comprise pressures related to client project deliveries, company reputation, OHS compliance enforcement, and government legislation. Kunodzia (2023) puts forward a framework based on the PDCA method, derived from the study's findings, proposing a systematic approach to enhance the effectiveness of OHSMS implementation within the construction sector.

Moyo (2015) highlights the global issue of limited access to occupational health and safety services for workers in South Africa, Zimbabwe, Zambia, and Botswana. The study identifies a shortage of qualified professionals and experts in the field, as well as a deficiency in training programs and educational opportunities related to occupational health and safety. Mashwama (2019) focuses on the challenges faced by Small and Medium Enterprises (SMEs) in the construction industry. The study identifies poor communication within SMEs regarding occupational health and safety practices, inadequate occupational health and safety education, lack of technical skills, insufficient inspections and audits, and insufficient management supervision as challenges hampering OHSMS implementation. Myeni (2020) highlights the fragmented legislative framework for occupational health and safety in South Africa, which incorporates different levels of registered professionals and lacks a single agency with overall accountability. The study points out the absence of harmonization, incentives for compliance, and coordination in the implementation of occupational health and safety programs. Iden (2022) emphasizes the challenges faced by African youth in terms of workplace safety. Many young workers lack proper safety measures, and a significant portion of them are not actively

involved in education, employment, or training. The absence of a social safety net exposes them to potential hazards without adequate support in case of job loss, injury, or other unforeseen circumstances (Iden, 2022). The studies state that addressing these challenges requires a comprehensive approach involving increased financial resources, improved expertise and training programs, enhanced communication, and education efforts, strengthened enforcement mechanisms, and the establishment of coordination and support structures (Iden, 2022). It is essential to prioritize worker safety, promote awareness and compliance, and develop inclusive occupational health and safety policies tailored to the specific circumstances of South Africa (Iden, 2022). In conclusion, the studies examined reveal both common and unique challenges encountered in the implementation of occupational health and safety (OHS) measures. Among the common challenges are a lack of commitment from top management, insufficient personnel competency, language barriers, inadequate worker awareness, tight working schedules, resource constraints, high labour turnover rates, limited access to OHS services, shortage of qualified professionals, deficiency in training programs, poor communication within small and medium enterprises (SMEs), inadequate technical skills, insufficient inspections and audits, and minimal management supervision. However, one distinctive challenge highlighted is the vulnerability of African youth to workplace safety issues due to a lack of safety measures and social support systems. Addressing these challenges necessitates a comprehensive approach involving increased financial resources, enhanced expertise and training programs, improved communication, and education efforts, strengthened enforcement mechanisms, and the development of inclusive OHS policies tailored to regional contexts. Prioritizing worker safety and promoting awareness, compliance, and supportive policies are crucial steps in fostering safer work environments across various sectors and regions.

2.6 The benefits of implementing Occupational Health and Safety Management Systems (OHSMS)

Yang (2020) suggests that some companies opt for the adoption of an Occupational Health and Safety Management System (OHSMS) to systematically reduce lost workdays, accident rates related to workplace safety, and costs associated with occupational diseases. This system is believed to effectively mitigate OHS risks and enhance safety management, thus enabling workers to fulfil their duties with fewer safety concerns (Yang, 2020). Additionally, Yang (2020) highlights Wang (2016) study, which investigated 73 Chinese manufacturing firms between 2009 and 2012, revealing a positive association between OHSMS adoption and the efficiency of sustainability goals. However, despite the rapid growth in the number of certified firms worldwide, the debate regarding the benefits of adoption remains ongoing, necessitating further research to elucidate the pros and cons of OHSMS standards adoption (Yang, 2020). In contrast, Solc (2022) discovered various advantages of OHSMS through their examination of "The Development Trend of Occupational Health and Safety within the Framework of ISO 45001: 2018 Standards." This system not only showcases an organization's commitment to its employees but also enhances productivity, work efficiency, corporate culture, employee loyalty, and satisfaction. Moreover, it contributes to improved working conditions, decreased occupational accidents and illnesses, and adherence to specified health and safety standards. Calis (2019) echoes these findings, emphasizing that OHSMS aid in identifying and organizing processes and procedures, ensuring the implementation, review, and continuity of health and safety plans. Implementing an OHSMS offers numerous benefits, including accident reduction, productivity improvement, insurance cost reduction, promotion of a health and safety culture, employee involvement, leadership demonstration, legal compliance, reputation enhancement, and employee safety promotion (Calis, 2019). In addition, certification of OHSMS ensures compliance, facilitates continuous improvement, and provides employers with objective assessment, expanded business opportunities, increased credibility, and elimination of health and safety deficiencies (Solc, 2022). Customers benefit from improved conditions and quality (Solc, 2022). In international contexts, countries have recognized the limitations of strict regulations and instead focused on voluntary-based systems, with the European Union and other developed countries serving as models for developing nations (Calis, 2019). In general, both OHSAS 18001 and ISO 45001 offer guidelines for companies to manage occupational health and safety (OHS) risks and enhance OHS performance (Yang, 2020). However, differences exist between these standards. For instance, ISO 45001 places greater emphasis on both internal and external factors related to OHS issues (Yang, 2020). Additionally, ISO 45001 mandates companies to address OHS risks and opportunities that may impact the effectiveness of an Occupational Health and Safety Management System (OHSMS) positively or negatively (Yang, 2020). It also emphasizes the role of top management in effectively implementing an OHSMS (Yang, 2020). Nevertheless, Solc (2022) highlights the significance of a holistic approach to occupational safety and health, focusing on workplace well-being, culture, economic incentives, and social responsibility. Utilizing the Plan-Do-Check-Act (PDCA) concept for continual improvement, this system aims to manage OHS risks, prevent workrelated injuries, and ensure safe workplaces (Solc, 2022). Its advantages include risk mitigation, adoption of best practices, reduction in fatalities and accidents, demonstration of

leadership, policy implementation, and performance evaluation through monitoring and measurement (Solc, 2022). Similarly, Yang (2020) points out that ISO 45001 employs a continuous improvement cycle, such as the PDCA cycle, to establish OHS goals, evaluate OHS risks, oversee implemented OHS activities, and consistently enhance OHS performance. Moreover, Kineber (2023) asserts that fostering a safety culture requires implementing a plando-check-act management approach. In conclusion, the implementation of an OHSMS offers numerous benefits to organizations, as highlighted by Yang (2020), Solc (2022), Calis (2019), and Kineber (2023). By systematically reducing lost workdays, accident rates, and costs associated with occupational diseases, O HSMS effectively mitigates OHS risks and enhances safety management, thus fostering a safer work environment for employees. Additionally, OHSMS adoption is associated with increased productivity, improved corporate culture, heightened employee loyalty, and satisfaction. Moreover, the certification of OHSMS ensures compliance with standards, facilitates continuous improvement, and provides objective assessment for employers, leading to enhanced credibility and expanded business opportunities. The emphasis on a holistic approach to occupational safety and health, as advocated by Solc (2022), underscores the importance of addressing workplace well-being, culture, economic incentives, and social responsibility. Furthermore, the utilization of the Plan-Do-Check-Act (PDCA) concept for continual improvement, as noted by both Solc (2022) and Yang (2020), allows organizations to effectively manage OHS risks, prevent work-related injuries, and ensure safe workplaces. Overall, the adoption of an OHSMS not only promotes a culture of safety but also contributes to organizational success, employee well-being, and compliance with legal requirements, making it an essential component of modern workplace management practices.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter presents the research methodology employed to assess the efficiency of the Occupational Health and Safety Management System (OHSMS) at a university in South Africa. The chapter outlines the research design, sampling techniques, data collection methods, and data analysis procedures, with the aim to ensure the reliability and validity of the findings, leading to an accurate assessment of the OHSMS efficiency in the specific university context.

3.2 Research Design

In this study, a qualitative research design was followed to evaluate the efficiency of Occupational Health and Safety Management Systems (OHSMS) at a university in South Africa. This design was chosen because it enables a detailed exploration of participants' experiences, perspectives, and contextual factors affecting the implementation and effectiveness of OHSMS. Key data collection methods included in-depth interviews, qualitative observations, and document analysis, each tailored to gather comprehensive and relevant information for the study. These elements are crucial for gathering the necessary qualitative data (Sarwono, 2022). In-depth interviewing, a common qualitative research technique, involved conducting intensive individual interviews with a small number of respondents to delve deeply into their views, experiences, feelings, and perspectives (Boyce, 2006). The key characteristics of in-depth interviews include open-ended questions which begin with "why" or "how," which gives respondents the freedom to answer the questions using their own words (Boyce, 2006). The advantage of in-depth interviews is that they are more accurate than other data collection methods (Bhat, 2023). Qualitative observation, another method used in the study, focused on gathering observable, non-numeric data by utilizing the researchers' senses (Indeed Editorial Team, 2023). This approach aimed to document information and experiences that cannot be easily expressed through simple numerical measurements (Indeed Editorial Team, 2023). It is important to note that in qualitative observations, there are no right or wrong answers, and the data collected is often subjective (Indeed Editorial Team, 2023). Each qualitative observational study is unique due to the inherent variance between observations. According to Sarwono (2022), documents play a crucial role in research as they provide researchers with valuable information through documents review researchers can gain insights into the study subject. The process of document review involves collecting data by examining and analysing existing documents (U.S Department of Health and Human Services, 2018). These documents can be internal, pertaining to a specific program or organization, or external. They can exist in various formats, including hard copy or electronic versions, and encompass a wide range of materials such as reports, program logs, performance ratings, funding proposals, meeting minutes, newsletters, and marketing materials (U.S. Department of Health and Human Services, 2018). By incorporating both primary and secondary data in the form of in-depth interviews, qualitative observations, and document analysis into the research design, the study obtained valuable insights into the efficiency of the Occupational Health and Safety Management Systems (OHSMS) at the university. The first primary data was conducted through in-depth interviews, where the researchers engaged in one-on-one discussions with the participants, allowing for a thorough exploration of their perspectives, experiences, emotions, and viewpoints regarding the effectiveness of OHSMS. Furthermore, the second primary data was conducted through observations where the researcher's captured aspects of OHSMS efficiency. The secondary data was collected through document analysis of existing health and safety monthly reports, incident statistics reports, training records and health and safety policies and procedures. By combining these methods, the study adopted a holistic qualitative approach to investigate the OHSMS's efficiency. This comprehensive design allowed for a detailed evaluation of the system's effectiveness and provided the basis for recommendations aimed at improving occupational health and safety practices at the university.

3.3 Research Philosophy

Research philosophy refers to the beliefs and framework that guide how research is conducted based on ideas about reality and the nature of knowledge (Collins, 2013). There are three main research philosophies: positivism, interpretivism, and pragmatism (Muhaise, 2020). In this study, the interpretivism research philosophy was adopted to assess the efficiency of the Occupational Health and Safety Management Systems (OHSMS) at a South African university. Interpretivism emphasizes understanding and interpreting social phenomena through the perspectives and experiences of individuals, aligning well with the qualitative methods used in this research, such as in-depth interviews, observations, and document analysis (Tombs, 2020). Applying an interpretivist approach in this study involved focusing on the subjective experiences and interpretations of the university staff and stakeholders regarding OHSMS

implementation. For instance, in-depth interviews allowed participants to express their perceptions, experiences, and attitudes toward safety practices, workplace culture, and communication systems. These interviews provided rich, contextual insights into the factors influencing the effectiveness of OHSMS (Boyce, 2006). Additionally, qualitative observations were employed to capture non-verbal cues and contextual factors during safety-related activities, such as training sessions or hazard assessments. This allowed the researcher to interpret actions, behaviours, and interactions in real-time, providing a deeper understanding of how OHSMS is implemented and experienced within the university environment (Indeed Editorial Team, 2023). Lastly, document analysis was guided by the interpretivist philosophy by examining policies, reports, and records to understand how these documents reflect the university's approach to health and safety. The analysis focused on identifying the intentions, underlying assumptions, and compliance levels inherent in the documentation (U.S. Department of Health and Human Services, 2018). By embracing an interpretivist paradigm, the study prioritized understanding the meanings and interpretations participants assigned to their experiences with the OHSMS. This approach facilitated the exploration of factors contributing to the system's success or challenges, providing nuanced insights into areas requiring improvement (Surbhi, 2018).

3.4 Research approach

Reasoning is the process of using existing knowledge to draw conclusions, make predictions, or construct explanations (Butte College, 2019). Two fundamental approaches to reasoning are deductive and inductive, commonly associated with quantitative and qualitative research, respectively (Mulisa, 2022). Inductive reasoning, which aligns with qualitative research, involves moving from specific observations to general patterns, concepts, and theories (Woiceshyn, 2018). This approach was integral to this study, as it focused on exploring the perceptions and experiences of the university staff regarding the implementation of the OHSMS. The study applied inductive reasoning by collecting qualitative data through in-depth interviews and observations. For instance, during the interviews, participants shared their views and experiences related to the effectiveness of the OHSMS, workplace culture, communication systems, and staff attitudes toward safety. The data collected from these specific, detailed accounts were analysed to uncover common patterns and themes that provided insights into the factors influencing the success or challenges of the OHSMS.

Furthermore, qualitative observations were used to document real-time practices and behaviours within the workplace environment, such as safety drills, hazard identification processes, and interactions during safety meetings. These observations helped the researcher identify recurring trends, inconsistencies, and areas needing improvement, which were then generalized into broader conclusions about the effectiveness of the OHSMS (Indeed Editorial Team, 2023). Through this inductive approach, the study developed a deeper understanding of the contextual factors affecting the implementation of the OHSMS. This reasoning process allowed the researcher to generate conclusions and recommendations based on the patterns observed, rather than starting with a pre-established theory or hypothesis (Streefkerk, 2023).

3.5 Research Methodology

Methodology in research is defined as the systematic method to resolve a research problem through data gathering using various techniques, providing an interpretation of data gathered, and drawing conclusions about the research data (Bouchrika, 2022). This study aimed to assess the efficiency of the Occupational Health and Safety Management Systems (OHSMS) at a university in South Africa by adopting a qualitative research methodology. The chosen methodology involved using in-depth interviews, observations, and document analysis as data collection methods to gather comprehensive insights into the perceptions, experiences, and contextual factors influencing the OHSMS implementation. In this study, in-depth interviews were conducted with selected university staff to explore their views on the strengths and challenges of the OHSMS. The interviews followed a semi-structured format, allowing participants to share their experiences and opinions in their own words while providing the researcher with flexibility to probe for additional details. This approach enabled the study to uncover specific insights into staff attitudes toward workplace safety, the effectiveness of safety policies, and the communication systems in place. The observations focused on capturing realtime practices and behaviours during safety-related activities, such as fire drills, hazard identification inspections, and safety training sessions. By observing these activities, the researcher documented operational practices, compliance levels, and workplace culture, providing a deeper understanding of how the OHSMS is implemented and experienced on the ground. These observations were instrumental in identifying areas of both compliance and noncompliance with safety protocols.

Document analysis was conducted to examine health and safety policies, incident reports, training records, and other relevant documents. This method helped the researcher analyse the extent to which documented procedures aligned with actual practices. For instance, monthly incident reports were reviewed to assess trends in workplace injuries, while training records were analysed to evaluate the frequency and effectiveness of staff safety training. By combining these methods, the study systematically applied its qualitative research methodology to collect and analyse data, ultimately enabling a comprehensive evaluation of the OHSMS. This methodology not only facilitated a detailed exploration of staff perceptions and experiences but also provided evidence-based insights into areas for improvement in health and safety management at the university.

3.6 Sampling Frame

In this study, three methods of data collection were employed: in-depth interviews, observations, and document analysis. The construction of the sampling frame for the in-depth interviews involved several steps. First, a list of committee members serving on each health and safety committee was compiled, utilizing attendance registers and communication with committee chairs or administrators responsible for maintaining membership. Verification of active members was then conducted by reviewing the provided list and confirming involvement through attendance records and communication with committee chairs. Individuals who only attended meetings upon request or for specific issues were excluded from the sampling frame. All relevant health and safety committees were consolidated into a single sampling frame, comprising the names of eligible individuals considered for sampling. For the sampling frame in the observations of emergency evacuation drills, the process included obtaining the drill schedule, determining observation periods during the study's three-month duration, preparing checklists for recording observations and ensuring the availability of video documentation. During the designated observation periods, participants and their actions were observed to assess their attitudes, behaviours, and the effectiveness of evacuation procedures in relation to the OHSMS efficiency. In the case of document analysis, the following steps were undertaken to establish the sampling frame: identifying specific relevant documents such as policies, procedures, risk registers, incident reports, training records, and minutes of health and safety committee meetings; gathering these documents from various sources within the university, including digital files, physical archives, departmental repositories, and stakeholders or administrators; determining the timeframe for analysis, which spanned three years; assessing collected documents for suitability based on their relevance to the research objectives and the

information they provide regarding OHSMS efficiency; and creating a sampling frame by listing the selected documents for analysis.

3.7 Sample Size

In this study, the determination of the sample size was guided by the qualitative research methodology and the principles of interpretivism, which prioritize depth of understanding over numerical representation. Creswell (2009) suggested using formulas to calculate and determine sample size as a way to ensure accountability and justify the selection of a specific sample size. This approach was developed in response to criticisms that qualitative research often lacked accountability in sample size selection. In contrast, Boddy (2016) argued that determining sample size in qualitative research is not a one-size-fits-all process; it should be shaped by the specific research context and the underlying scientific paradigm. Different research paradigms, such as positivism or in-depth qualitative research, may require different sample sizes to achieve their respective goals. Additionally, Sim (2018) identified four approaches to determining sample size in qualitative research: rules of thumb, conceptual models, numerical guidelines from empirical studies, and statistical formulae.

In light of this, the study applied Slovin's formula, as prescribed by numerous scholars as a valuable tool for sample size calculation, with careful consideration given to the specified error tolerance criteria for determining the minimum sample size needed for the study (Anugraheni, 2023; Baloyi et al., 2024; Dalasile et al., 2024; Madonsela et al., 2024a; Madonsela et al., 2024b). Research showed that this formula had been widely adopted, recommended, and applied by numerous scholars and researchers, including Osahon (2016), Raheem (2019), and Obianefo (2020), across various disciplines for sample size determination. The formula used to determine the sample size is presented below.

$$n = \frac{N}{1 + Ne^2}$$

The sample size for the in-depth interviews was determined using the formula. By applying the calculation, a sample size of 132 was obtained. As a result, this sample was evenly distributed among the 7 active health and safety committees at the university.

$$\frac{N}{1 + Ne^2}$$

$$n = \frac{196}{1 + (196)(0.05)^2}$$

$$n = 132$$

3.8 Sampling

Sampling is the process of selecting a subgroup of individuals from a larger population for participation in a research study (Guest, 2014). This study employed non-probability sampling, specifically purposive sampling, to select participants. Purposive sampling is best used when you want to focus in-depth on relatively small samples (Nikolopoulou, 2022). This study involved a small sample, therefore purposive sampling was applied, where a sample size of 132 staff who serve on various health and safety committees was obtained. By employing purposive sampling, the research managed to gather rich and detailed information from participants who have direct involvement and knowledge in occupational health and safety practices at the university. This intentional selection ensured that the sample represents key stakeholders who can provide meaningful contributions to the assessment of the OHSMS efficiency.

3.9 Data Collection Methods

This study employed in-depth interviews, qualitative observation, and document analysis to gather data for evaluating the efficiency of the OHSMS at a South African university. In-depth interviews were used as a primary data collection method to explore participants' perceptions, experiences, and attitudes regarding the implementation of the OHSMS. Open-ended questions, starting with "why" or "how," allowed respondents to provide detailed and nuanced insights in their own words as outlined by Boyce (2006). According to Bhat (2023), this method also enabled the researcher to observe variations in participants' tone and word choice, adding further depth to the collected data. Qualitative observation was conducted to evaluate the university's emergency evacuation drills, scheduled monthly by the OHS Department. Approval to conduct the drills for specific buildings or departments was sought from the respective health and safety committee chairpersons. A comprehensive checklist was used to systematically observe critical aspects of the evacuation process. During the drills, the researcher documented participant behaviours, interactions, and compliance with protocols, as

well as overall evacuation effectiveness. These observations provided valuable insights into the practical application of OHSMS measures and highlighted areas for improvement in emergency preparedness. This aligns with George's (2023) assertion that qualitative observation involves the subjective interpretation of sensory inputs such as what is seen, heard, or experienced. Document analysis served as part of the secondary data collection process. This involved reviewing health and safety monthly reports, audits, incident statistics reports, training records, and health and safety policies and procedures. These documents, sourced internally, covered a 12-month period and offered a comprehensive overview of the university's health and safety practices. The analysis focused on identifying patterns, compliance with OHSMS protocols, and areas requiring attention, supplementing the insights gained from interviews and observations (U.S. Department of Health and Human Services, 2018).

3.10 Data Analysis

Data analysis involves the systematic use of statistical and/or logical techniques to describe, illustrate, summarize, and evaluate data, as stated by Shamoo (2003). Qualitative data can take various forms, including textual materials, photographs, videos, and audio recordings, such as interview transcripts, survey responses, field notes, or recordings from natural settings (Bhandari, 2023). There are several approaches to data analysis, including content analysis, thematic analysis, textual analysis, and discourse analysis (Bhandari, 2023). In this study, a thematic analysis method was employed. Thematic analysis is commonly used for analysing qualitative data, particularly sets of texts such as interviews or transcripts. The researcher closely examines the data to identify recurring themes, topics, ideas, and patterns of meaning (Caulfield, 2019). Thematic analysis aligns with inductive reasoning, allowing themes to emerge from the data. The analysis process began with the researcher familiarizing themselves with the data, which included reading interview transcripts, observation notes, and relevant documents multiple times. This step helped the researcher gain an overall understanding of the content and context of the data (Caulfield, 2022). The data were then coded, with meaningful segments or units labelled to capture key concepts, patterns, and ideas related to the efficiency of the OHSMS. Codes were derived inductively, allowing themes to emerge naturally without pre-established categories. After coding, the researcher reviewed and grouped the codes into potential themes, representing broader categories or issues observed in the data. For instance, themes such as "communication gaps," "workplace culture," and "emergency preparedness" emerged as key factors influencing the effectiveness of the OHSMS. These themes were then refined and revised to ensure they accurately represented the data and aligned with the research

objectives. Each theme was carefully defined and labelled, accompanied by concise descriptions that captured their essence. The data were then organized according to themes, grouping relevant excerpts, quotes, or segments to create a structured dataset. Each theme was analysed in depth, examining its implications, variations, patterns, and relationships within and across themes. Findings were interpreted in relation to the research objectives and the broader context of OHSMS implementation. This step allowed the researcher to assess how each theme contributed to understanding the efficiency of the OHSMS and to identify areas for improvement. Overall, the thematic analysis method allowed for a systematic exploration and understanding of the data, contributing to the assessment of OHSMS efficiency in the study.

3.11 Validity and Reliability

To ensure reliability and validity in the study assessing the efficiency of OHSMS at a university, several strategies were implemented. Firstly, a triangulation approach was adopted, employing multiple data collection methods such as interviews, observations, and document analysis. This diversified approach allowed for a comprehensive understanding of the research topic. Secondly, purposeful sampling techniques were employed to select participants or documents that were relevant and representative of the target population or research context. This helped ensure the findings were applicable and representative. Thirdly, a continuous analysis process was employed, evaluating newly collected data to identify additional insights or confirm existing themes. By implementing these strategies, the study aimed to enhance the reliability and validity of the findings, thus strengthening the overall quality and trustworthiness of the research.

CHAPTER FOUR: RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the research findings, which aim to fulfil the aim outlined in Chapter 1. The aim of this study was to evaluate the effectiveness of the occupational health and safety management system (OHSMS) at a university in South Africa. In this study, to establish a functional OHSMS at the university, the study examined these specific essential elements required for the successful implementation of an OHSMS. The PDCA cycle was employed in this study to pinpoint the crucial components to concentrate on during the development of the interviews. By employing the PDCA cycle in the current research, a methodical and organized approach was taken to assess the crucial aspects of the OHSMS, in accordance with international standards like ISO 45001. The study evaluated the following elements: Plan (Policy and Commitment, Roles and Responsibilities, Hazard Identification and Risk Assessment), Do (Implementation), Check (Evaluation and Monitoring), and Act (Management Review). The PDCA cycle, a continuous improvement model, was applied in this study to assess the efficiency of Occupational Health and Safety Management System (OHSMS) at a university in South Africa. It is important to highlight that data collection followed the triangulation techniques. Whereby data was gathered using primary collection methods, including in-depth interviews and observations, as well as secondary data collection methods, including document review of Occupational Health and Safety (OHS) record.

4.2 The university commitment towards policy compliance

In addressing Objective A of the study, which seeks to determine if an Occupational Health and Safety Management System (OHSMS) is in place at the university, the findings indicate a strong commitment to complying with the provisions of the OHS Act 85 of 1993. Figure 4.1 reveals that 97% of respondents emphasized the critical importance of adhering to the mandates of the OHS Act, primarily referencing legal obligations. This demonstrates widespread recognition among stakeholders of the legal and ethical necessity of compliance. However, 3% of respondents expressed a lack of familiarity with the OHS Act, pointing to an awareness gap that could be addressed through targeted educational initiatives. Comparing these findings to Adenan (2023) study in a wood-based product manufacturing company, it becomes evident that structured schedules and proactive health and safety leadership significantly contribute to compliance. While these factors may differ in a university setting, the results align with the general compliance standards set by the OHS Act 85 of 1993.



Figure 4.1: Importance of adhering to the provisions of the OHS Act 85 of 1993

In addressing Objective B, which focuses on identifying the roles and responsibilities of stakeholders in the implementation and management of the OHSMS at the university, the study revealed that stakeholder roles are generally well-defined. 97% of respondents acknowledged their responsibilities in ensuring compliance with occupational health and safety requirements, reflecting a high level of awareness and engagement. However, 3% of respondents indicated unfamiliarity with their roles, suggesting the need for improved communication and training initiatives. These findings resonate with Pilusa (2018) study, where only 16.36% of respondents were well-versed in occupational legislation, and the majority lacked detailed knowledge of specific laws. Despite this, Pilusa (2018) study found that respondents acknowledged the broader benefits of occupational health and safety, including workplace safety and workers' rights, which is consistent with the generally positive perceptions identified in this study.

In addressing Objective C, which aims to evaluate how effectively the OHSMS is implemented for managing occupational health and safety at the university, the study found that the OHSMS is operational but requires enhancements in specific areas. The awareness gap (3% of respondents) points to a need for targeted communication and educational programs to strengthen the understanding of compliance requirements and stakeholder responsibilities. Drawing parallels with Adenan (2023) findings in a wood-based product manufacturing company, structured participation in health and safety activities and proactive leadership by health and safety officers significantly contributed to effective implementation. Adapting similar strategies to the university setting could further enhance the system's effectiveness and operational outcomes. In addressing Objective D, which focuses on determining compliance with Occupational Health and Safety documentation requirements, the study found that the university demonstrates a structured approach to documentation. This includes the regular review of monthly health and safety reports, incident statistics, training records, and health and safety policies. These practices reflect a commitment to compliance. However, the study also highlighted the importance of regular audits and consistent training to further improve and sustain documentation practices. Aligning these efforts with the provisions of the OHS Act 85 of 1993 would ensure both continued adherence and ongoing improvements in documentation processes.

4.3 Significance of establishing an Occupational Health and Safety (OHS) Policy in university setting

In addressing Objective A, of the study, the findings revealed that 100% of respondents believed it is crucial for the university to have an OHS policy, emphasizing its role in providing direction for ensuring a safe working and learning environment. This aligns with Section 7 of the OHS Act 85 of 1993, which mandates employers to develop a written policy to protect the health and safety of employees, and the ILO-OSH 2001 guidelines, which require collaboration between employers and employees to establish a documented OHS policy (Taderera, 2012). Despite the universal agreement on the importance of an OHS policy, 5% of respondents highlighted gaps in communication and enforcement methods, as depicted in Figure 4.2, while 95% confirmed the policy is effectively communicated through channels such as OHS committees and newsflashes. These findings suggest that while the OHSMS is in place, there is room for improvement in communication strategies to ensure all stakeholders are adequately informed and involved.



Figure 4.2: Discrepancies in Perceptions on Communicating and Enforcing the OHS Policy.

In line with Objective B, the study found discrepancies in stakeholder perceptions regarding the communication and enforcement of the OHS policy. 95% of respondents acknowledged the effectiveness of current communication mechanisms, while 5% felt communication systems were inadequate, pointing to the need for stakeholder engagement initiatives to clarify roles and responsibilities. This aligns with Delvika (2019) findings that 76% of respondents in a similar study emphasized the importance of an HSE policy in fostering stakeholder commitment. Similarly, Okolieuwa (2023) highlights the positive impact of well-communicated OHS policies on motivation, job satisfaction, and productivity, further underscoring the necessity of management's active role in policy communication.

In addressed Objective C, the findings indicate that the OHSMS framework is effectively communicated to most stakeholders, there is a recognized need to improve its implementation, particularly in addressing the concerns raised by the 5% who perceive communication gaps. Strengthening policy enforcement and communication strategies can help bridge this gap, ensuring the OHSMS is implemented more effectively to meet its intended goals. The outcomes of this study align with the emphasis in the OHS Act 85 of 1993, which mandates the visible display of a signed OHS policy in workplaces, reinforcing its significance in guiding occupational safety practices (Maseko, 2016).

Finally, the findings in addressing Objective D, revealed that the university aligns with legal mandates, as highlighted by the consistent communication and display of the OHS policy in accordance with Section 7 of the OHS Act 85 of 1993. However, the 5% of respondents highlighting inadequate communication suggest there may be opportunities to further enhance

compliance by ensuring the OHS policy is prominently displayed in all relevant locations and supported with periodic educational programs. This aligns with Maseko's (2016) assertion that an OHS policy represents the foundation for developing safety goals, objectives, and performance measures.

4.4 Organising roles and responsibilities for an effective implementation of Occupational Health and Safety Management System

In addressing Objective A seeking to determine if an Occupational Health and Safety Management System (OHSMS) is in place at the university), the study confirmed the presence of a functioning OHSMS, as evidenced by compliance with Sections 8 and 14 of the OHS Act 85 of 1993. Figure 4.3 indicates that 75% of respondents consistently adhered to these requirements, reflecting proactive engagement with health and safety practices. Employer initiatives such as establishing a vaccination centre during the COVID-19 pandemic, providing free Personal Protective Equipment (PPE), and conducting regular OHS Committee meetings further demonstrate the operational status of the OHSMS. However, 25% of respondents acknowledged compliance challenges, citing inconsistencies in incident reporting, communication gaps, and infrastructure maintenance issues, which hinder full effectiveness. These findings align with the proactive measures and leadership commitment emphasized by Ligade (2013), who stress that management's commitment is crucial for effective OHSMS implementation.



Adherence to the requirements of Sections 8 and 14 of OHS Act 85 of 1993
 Non-adherence to the requirements of Section 8 and 14 of OHS Act 85 of 1993

Figure 4.3: Adherence with the requirements of Section 8 and Section 14 of the OHS Act 85 of 1993

In addressing Objective B aiming to identify the roles and responsibilities of stakeholders in the OHSMS implementation and management at the university, the study found that employer and employee responsibilities are generally well-defined. Employers fulfilled their duties under Section 8 of the OHS Act by assigning roles, conducting training, and ensuring resource availability, while employees adhered to their duties under Section 14 by reporting unsafe conditions, participating in training, and following OHS policies and procedures. Despite this, 25% of respondents reported challenges such as employee complacency and communication gaps, highlighting areas for improvement. These challenges resonate with Letooane (2014), who reported dissatisfaction among university employees regarding inadequate training, poor resource allocation, and ineffective communication of health and safety roles. Similarly, Muthelo (2022) noted comparable challenges in the mining industry, where operational pressures and leadership gaps hindered compliance. Both studies emphasize the critical role of strong leadership, adequate training, and effective resource allocation in ensuring stakeholder accountability.

In addressing Objective C that seeks to evaluate how effectively the OHSMS is implemented for managing occupational health and safety, the study revealed a mix of strengths and challenges. The university demonstrated success through proactive measures such as incident investigations, regular departmental OHS Committee meetings, and comprehensive training for OHS Representatives and First Aiders. However, reported gaps in infrastructure maintenance, inconsistent communication, and occasional employee complacency limited the system's overall effectiveness. These findings align with Mojapelo (2017), whose study highlighted the importance of workplace satisfaction through active employee participation and employer engagement in health and safety measures. While the university has made significant progress, addressing these gaps through enhanced communication and targeted training programs could further improve implementation.

As for Objective D that seeks to determine Occupational Health and Safety documentation compliance, the study found that the university complies with the OHS Act by formally appointing individuals within the OHS structure in writing, ensuring documented accountability. Additionally, regular updates to incident reports, training records, and health and safety policies demonstrate adherence to documentation standards. However, inconsistencies in incident reporting procedures and dissemination of OHS policies suggest the need for improved systems to ensure comprehensive compliance. These findings align with Maseko (2016), who emphasized the importance of prominently displaying OHS policies and conducting regular audits to maintain compliance.

By addressing these objectives, the study highlights the university's achievements in organizing roles and responsibilities within its OHSMS while identifying areas requiring improvement. These findings, supported by comparisons with other studies such as Letooane (2014), Muthelo (2022), and Mojapelo (2017), provide actionable insights for enhancing health and safety practices through improved leadership, communication, and training strategies.

4.5 Challenges and barriers in adhering to the provisions of Sections 8 and 14 of the Occupational Health and Safety Act 85 of 1993

In addressing Objective A seeking to determine if an Occupational Health and Safety Management System (OHSMS) is in place at the university, the study found that while the university has established an OHSMS, several challenges hinder full adherence to Sections 8 and 14 of the OHS Act 85 of 1993. Figure 4.4 indicates that 40% of respondents cited infrastructure maintenance and resource shortages as significant barriers. These issues include delays in implementing corrective actions, insufficient budget allocations for safety improvements, and delays in acquiring or maintaining safety equipment such as fire-fighting devices. These findings align with Mohale (2021), who highlighted resource constraints and budgetary oversights as key challenges in ensuring safety compliance in academic laboratories.



Figure 4.4: Compliance challenges and barriers

For Objective B aiming to identify the roles and responsibilities of stakeholders in the OHSMS implementation and management, the study revealed that 30% of respondents identified communication hurdles as a critical challenge. Language barriers, stemming from South

Africa's eleven official languages, complicate the effective dissemination of OHS information, particularly for unskilled laborers who may not be fluent in English (Kunodzia, 2024). This emphasizes the need for inclusive communication strategies tailored to diverse linguistic and educational backgrounds. Similarly, Letooane (2014) found that a lack of collaboration between university employees and management posed significant obstacles to improving workplace safety, underlining the importance of fostering stronger partnerships and effective communication among stakeholders.

In addressing Objective C that aims to evaluate how effectively the OHSMS is implemented for managing occupational health and safety, the study found that 20% of respondents cited procedural obstacles as a barrier to timely and efficient health and safety implementation. These procedural issues include delays in the call logging system, staff shortages in maintenance, and inefficiencies in procurement processes. These findings echo Cooney's (2016) observations in the construction industry, where procurement-related delays and accountability gaps were identified as critical factors affecting health and safety compliance. Improving these processes within the university's OHSMS could enhance its operational efficiency and overall effectiveness. Additionally, 10% of respondents highlighted the lack of Standard Operating Procedures (SOPs) and insufficient on-the-job training as factors contributing to compliance challenges. These gaps underscore the need for structured training programs and clear procedural guidelines, as highlighted by Mohale (2021), who emphasized the critical role of safety education and training in academic environments. Addressing these deficiencies through continuous education and policy development could significantly improve adherence to safety protocols.

Objective D that seeks to determine Occupational Health and Safety documentation compliance, the study found gaps in maintaining and updating essential documentation, such as SOPs and training records. While the university has made commendable efforts in implementing health and safety policies, ensuring that these policies are effectively communicated and updated regularly remains a challenge. Insights from Mojapelo (2017) and Muthelo (2022) further emphasize the importance of maintaining accurate records, enhancing procedural efficiency, and involving all stakeholders to foster a culture of safety compliance.

While the university has established a foundation for health and safety compliance, significant challenges persist. Improvements in communication, infrastructure maintenance, resource management, and training are critical to addressing these barriers. The findings align with
studies by Mohale (2021), Letooane (2014), Muthelo (2022), and Mojapelo (2017), which emphasize the need for a comprehensive, stakeholder-driven approach to safety compliance. By addressing these systemic barriers, the university can create a safer and healthier working and learning environments for all.

4.6 Hazard Identification and Risk Assessment (HIRA) process in the university

In addressing Objective A, to determine if an Occupational Health and Safety Management System (OHSMS) is in place at the university, the study revealed that the university employs structured methods for hazard identification, as required by Section 8 of the OHS Act 85 of 1993. The Act mandates that employers proactively identify and address hazards to protect the health and safety of individuals. Similarly, ISO 45001 emphasizes the importance of identifying and eliminating work-related risks (Agus, 2020). The university utilizes multiple approaches for hazard identification, with 70% of respondents indicating that inspections conducted by OHS Representatives are the primary method, while 30% mentioned additional strategies such as staff observations, walkabouts, and referencing the OHS Department's risk register, as illustrated in Figure 4.5. These methods demonstrate the university's commitment to maintaining a functional OHSMS.



Figure 4.5: Methods used to identify potential hazards in the university.

For Objective B, to identify the roles and responsibilities of stakeholders in the OHSMS implementation and management, the study highlights that OHS Representatives play a critical role in conducting inspections and identifying potential hazards. Their proactive involvement

aligns with Orymowska's (2017) findings, which emphasize the importance of identifying chains of events that could lead to safety-threatening incidents. Additionally, staff participation through observations and walkabouts reflects a shared responsibility for maintaining a safe environment. These findings underscore the importance of collaborative efforts among stakeholders to effectively manage hazard identification and risk assessment.

In addressing Objective C, to evaluate how effectively the OHSMS is implemented for managing occupational health and safety, the study found that while hazard identification processes are in place, there is room for improvement in inspection practices and risk assessments. Letooane (2013) emphasized that enhanced inspections and assessments are necessary to address hazardous conditions effectively, a sentiment echoed by the findings of this study. Routine checks and inspections conducted by designated personnel, as recommended by Minett (2022), are integral to a proactive health and safety strategy. The findings reveal that the university's reliance on OHS Representatives for inspections is effective but could be bolstered by integrating additional methods such as technological tools for real-time hazard monitoring.

For Objective D, to determine Occupational Health and Safety documentation compliance, the study found that the university maintains a risk register through the OHS Department, which is used as a reference for hazard identification. This documentation aligns with best practices outlined in ISO 45001, ensuring that identified hazards and associated risks are recorded and addressed systematically. However, the findings suggest that greater consistency in maintaining and updating these records would further enhance compliance and support proactive hazard management.

The university has made significant strides in implementing a robust hazard identification and risk assessment process as part of its OHSMS. These efforts are supported by inspections, observations, and the use of a risk register, demonstrating compliance with legislative and international standards.

4.7 Review frequency of Hazard Identification and Risk Assessment

In addressing Objective A, to determine if an Occupational Health and Safety Management System (OHSMS) is in place at the university, the study found that the university conducts Hazard Identification and Risk Assessment (HIRA) reviews with varying frequencies. Figure 4.6 shows that the majority of respondents reported monthly assessments, demonstrating a strong commitment to ongoing safety monitoring. However, 5% of respondents indicated that no assessments are conducted at all in some areas, revealing gaps in the system that require attention. Additionally, 3% reported assessments occurring both weekly and monthly, while 8% stated that assessments are done regularly or continuously, reflecting the university's efforts toward establishing a functional OHSMS framework.



Figure 4.6: Frequency of review of risk assessment at the university.

For Objective B, to identify the roles and responsibilities of stakeholders in the OHSMS implementation and management, the findings suggest that while the majority of departments follow a structured schedule for HIRA reviews, there is a lack of uniformity in practices across the university. The 22% of respondents in the 'other' category, including those who were unsure or mentioned HIRA being conducted once with no subsequent reviews, underscores the need for clearer stakeholder accountability. According to Constantine (2018), HIRA reviews should be performed whenever changes to the workplace or processes occur. Ensuring that all stakeholders are aware of their roles in scheduling and conducting regular reviews would enhance compliance and the overall effectiveness of the system.

In addressing Objective C, to evaluate how effectively the OHSMS is implemented for managing occupational health and safety, the study found a strong framework for regular hazard identification and assessment in most areas, as evidenced by the majority of respondents reporting monthly reviews. However, the 3% of respondents reporting quarterly reviews and the 5% indicating no reviews at all highlight inconsistencies that could compromise the

effectiveness of the system. Shubani (2010) emphasizes that continuous hazard and risk assessments are critical to preventing and controlling risks. Strengthening training and communication about the importance of consistent HIRA practices across all departments is essential to enhance implementation.

For Objective D, to determine Occupational Health and Safety documentation compliance, the findings reveal that while the university demonstrates a structured approach to hazard assessments, documentation of review frequencies varies. Ensuring that review schedules are standardized and properly documented across departments would improve compliance and support proactive hazard management. Regularly updated records reflecting consistent review practices would also align with ISO 45001 standards, which emphasize periodic reviews in response to changes in workplace conditions (Constantine, 2018).

Based on the findings, the university has made commendable progress in establishing a framework for regular HIRA reviews, with the majority of respondents reporting monthly or continuous assessments. However, addressing the inconsistencies in review schedules and enhancing stakeholder accountability, training, and documentation would further strengthen the university's OHSMS.

4.8 Implementation of key components of the Occupational Health and Safety Management System at the university

In addressing Objective A, to determine if an Occupational Health and Safety Management System (OHSMS) is in place at the university, the findings indicate that 63% of respondents believe the key components of the OHSMS framework are appropriately handled to maintain health and safety compliance, as shown in Figure 4.7. However, 25% of respondents expressed concerns about non-compliance in implementing specific key components, while 13% provided mixed or partial feedback, highlighting areas that require further attention. These findings align with Rahmi (2021), who emphasizes the importance of incorporating safety considerations early in organizational processes to create a safe work environment. The results suggest that while the OHSMS is established, gaps exist in its full execution, particularly in areas such as hazard identification, operational control, and resource allocation.



Figure 4.7: Implementation of OHSMS key components.

For Objective B, to identify the roles and responsibilities of stakeholders in the OHSMS implementation and management, the study highlights both successes and challenges. The roles of OHS Representatives and individuals appointed by the Vice-Chancellor under Section 16.2 of the OHS Act 85 of 1993 were noted as essential to the implementation process. Successful initiatives include the establishment of OHS Committees, the provision of training for First Aiders and OHS Representatives, and the appointment of individuals within the OHS structure. However, respondents raised concerns about inconsistent communication of OHS policies, insufficient information on risk mitigation measures, and gaps in hazard identification processes. Mohammedi (2018) identifies similar challenges, indicating that operational control and functional performance can be impeded by such deficiencies.

In addressing Objective C, to evaluate how effectively the OHSMS is implemented for managing occupational health and safety, the study reveals several strengths, such as regular training programs, OHS Committee meetings, and structured hazard identification processes. However, respondents highlighted barriers including irregular infrastructure maintenance, delayed resource allocation, and ineffective operational controls and procurement processes. Additional concerns included a lack of comprehensive training programs, such as fire extinguisher training, and the prioritization of medical emergencies over fire emergency preparedness. These issues suggest that while many components of the OHSMS are effectively implemented, persistent gaps require focused interventions to improve the system's overall effectiveness.

For Objective D, to determine Occupational Health and Safety documentation compliance, the findings show that the university has made efforts to meet compliance requirements through the establishment of an OHS policy and the appointment of personnel in line with the OHS Act. However, gaps in continuous review and practical application of the policy were noted. Respondents expressed concerns about the lack of regular updates and evidence for ongoing enhancement of the OHSMS framework. Shubani (2010) highlights the importance of regular reviews to ensure that OHS policies remain relevant and effective. Addressing these gaps in documentation practices would strengthen compliance and support the university's efforts to maintain high safety standards.

The findings show that the university has achieved notable successes in implementing key components of the OHSMS, such as the establishment of committees, targeted training, and structured hazard identification processes. However, challenges in operational control, resource allocation, and communication persist. These results emphasize the importance of addressing these challenges through targeted interventions and continuous improvement to achieve higher levels of compliance and safety.

4.9 Resource availability for the effective implementation of Occupational Health and Safety Management System

In addressing Objective A, to determine if an Occupational Health and Safety Management System (OHSMS) is in place at the university, the study reveals that many respondents noted that the university provides adequate resources, including fire equipment, first aid training, and support from the OHS department, as shown in Figure 4.8. However, 35% of respondents disagreed, citing resource-related challenges such as delayed maintenance due to financial constraints and insufficient human resources. These delays impact critical areas such as verifying building compliance and obtaining Certificates of Conformance (COC) for electrical, gas, plumbing, and fire safety installations before facilities are utilized. These findings indicate

that while resources are generally available, there are gaps in ensuring their timely and effective deployment.



Adequate Resources Provided Inadequate Resources Provided

Figure 4.8: Provision of resources for the implementation of OHSMS.

For Objective B, to identify the roles and responsibilities of stakeholders in the OHSMS implementation and management, the findings highlight the need for increased oversight by personnel responsible for ensuring the quality of contractors' or service providers' work. Respondents emphasized the importance of having designated personnel to monitor compliance with building safety regulations and certifications. Karanikas (2021) underscores the need for sufficient resources, including staffing and workforce planning, to support the effective implementation of management systems. Ensuring that stakeholders are adequately resourced to fulfil their responsibilities would address the concerns raised by respondents regarding delayed responses and oversight.

In addressing Objective C, to evaluate how effectively the OHSMS is implemented for managing occupational health and safety, the study found that while many components of the OHSMS are supported by adequate resources, delays in addressing maintenance issues and insufficient personnel hinder effective implementation. These delays can lead to non-compliance with safety regulations and may compromise the university's ability to meet its health and safety objectives. Shubani (2010) highlights the importance of aligning resources with documented objectives and ensuring regular reviews to address gaps in implementation.

For Objective D, to determine Occupational Health and Safety documentation compliance, the findings reveal inconsistencies in the documentation and verification of building compliance, particularly in obtaining Certificates of Conformance for essential safety installations. Ensuring that compliance processes are well-documented and regularly updated would

strengthen adherence to safety regulations and improve the overall effectiveness of the OHSMS.

The results demonstrate that while the university provides significant resources for OHSMS implementation, gaps in financial and human resources limit the system's effectiveness in certain areas. Addressing these challenges by allocating sufficient personnel, improving financial planning, and ensuring timely maintenance responses would enhance the university's ability to meet health and safety objectives.

4.10 Challenges in the implementation of Occupational Health and Safety Management System

In addressing Objective A, to determine if an Occupational Health and Safety Management System (OHSMS) is in place at the university, the findings indicate that while the system exists, challenges in implementation significantly impact its effectiveness. According to 92% of respondents, barriers such as lack of infrastructure maintenance, unreasonable turnaround times, and budget constraints impede the system's functionality. These issues are compounded by a shift in funding sources, as highlighted by Global Dev (2023), with National Student Financial Aid Scheme (NSFAS) funding now being directed partially to student allowances instead of institutions, reducing institutional income and affecting their ability to maintain sustainable operations. Figure 4.9 illustrates these challenges, highlighting the need for strategic interventions to address these systemic barriers.



Reported Implementation Challenges
No Significant Challenges

Figure 4.9: Data reported on OHSMS implementation challenges.

For Objective B, to identify the roles and responsibilities of stakeholders in the OHSMS implementation and management, the study identified several areas requiring improvement. Respondents noted a lack of support and engagement from management, delays in procurement processes, and deficiencies in training and awareness programs as significant obstacles. Additionally, there is a failure to enforce health and safety measures in certain contexts, such as gardeners neglecting to use ear protection while operating weed blowers, and a lack of regular medical surveillance for workers exposed to biological agents like cleaners and plumbers. These findings underscore the necessity for active stakeholder involvement and accountability to ensure roles are effectively fulfilled.

In addressing Objective C, to evaluate how effectively the OHSMS is implemented for managing occupational health and safety, the findings reveal that only 8% of respondents reported minimal obstacles, while the majority face significant barriers. The wide range of activities across laboratories, workshops, lecture halls, and administrative offices introduces distinct risks and safety requirements, making it difficult to adopt a universal approach. Resource limitations, including financial constraints and a lack of trained personnel, further hinder the system's effectiveness. These challenges align with da Silva (2019), who identified similar barriers such as inadequate preventive measures, insufficient worker satisfaction, and limited utilization of tools and indicators for monitoring and improvement.

For Objective D, to determine Occupational Health and Safety documentation compliance, the findings highlight gaps in enforcing consistent health and safety protocols and ensuring proper documentation. Issues such as delays in procurement processes and inadequate focus on occupational health measures emphasize the need for robust record-keeping and procedural adherence. Addressing these gaps would enhance the university's ability to monitor and evaluate its compliance with OHS standards effectively.

The findings emphasize the complexity of implementing an effective OHSMS within a public university setting. Barriers such as infrastructure maintenance challenges, budget constraints, lack of management support, and insufficient training require targeted strategies to address these shortcomings. Each space within the university, from laboratories to lecture halls, presents unique risks, making tailored approaches essential for achieving comprehensive health and safety compliance.

4.11 Indicators for evaluating and monitoring OHSMS performance

In addressing Objective A, to determine if an Occupational Health and Safety Management System (OHSMS) is in place at the university, the study revealed that indicators for evaluating and monitoring the system's performance are in use but vary in application and emphasis. An insignificant number of respondents highlighted the importance of training OHS Representatives as a critical factor. This training equips representatives to identify potential hazards and report concerns to the employer, allowing for corrective actions to enhance safety and health practices within the university. Additionally, the use of quarterly statistics on injuries provides a measure of harm caused by OHS issues, indicating the system's functionality in addressing health and safety risks. Figure 4.10 illustrates these findings, emphasizing the role of incident data and compliance measures in evaluating OHSMS performance.



Figure 4.10: Evaluation of university's OHSMS performance.

For Objective B, to identify the roles and responsibilities of stakeholders in the OHSMS implementation and management, the study found that OHS Representatives play a vital role in monitoring OHS performance. Their responsibilities include identifying workplace hazards and raising OHS-related concerns with the OHS committees, ensuring that corrective measures are implemented. This aligns with the 40% of respondents who assessed compliance levels by evaluating the severity of OHS concerns raised, such as infrastructure maintenance issues that impact the well-being of staff and students. Stakeholder involvement is further highlighted by the use of incident data and trends to identify and address underlying safety issues.

In addressing Objective C, to evaluate how effectively the OHSMS is implemented for managing occupational health and safety, the findings indicate that 30% of respondents relied primarily on incident data, including the number and types of injuries and illnesses reported, as the main metric for performance evaluation. This data includes details on the frequency and severity of incidents, the types of hazards involved, and trends over time. While this approach provides valuable insights, it may not fully capture the proactive measures and preventive strategies necessary for a comprehensive evaluation of the OHSMS. Shubani (2010) emphasized the importance of robust monitoring, measurement, investigations, and auditing activities to ensure the practical application of OHS systems, suggesting that reliance on incident data alone may be insufficient for a holistic evaluation.

For Objective D, to determine Occupational Health and Safety documentation compliance, the findings show that while some respondents rely on documented incident data and injury statistics for monitoring, gaps in systematic auditing and monitoring practices persist. Effective OHSMS performance evaluation requires structured procedures, including regular audits and comprehensive documentation of incidents, injuries, and compliance levels. Esterhuizen (2017) underscores the importance of active monitoring and safety auditing to verify compliance with legal standards, emphasizing that continuous monitoring is a fundamental management practice.

The findings demonstrate that while the university uses various indicators, including incident data and quarterly injury statistics, to evaluate OHSMS performance, there is room for improvement in establishing comprehensive monitoring, auditing, and training practices. Addressing these gaps by integrating proactive measures and strengthening documentation and evaluation procedures would enhance the university's ability to monitor and improve its OHSMS effectively.

4.12 Management Review of the Occupational Health and Safety Management System performance

In addressing Objective A, to determine if an Occupational Health and Safety Management System (OHSMS) is in place at the university, the findings reveal mixed perceptions regarding improvements in health and safety performance over the past five years. As shown in Figure 4.11, 50% of respondents acknowledged progress, citing better incident reporting and a greater focus on health and safety discussions. However, 40% expressed concerns about insufficient

efforts to address health and safety effectively, and 10% were either still observing changes or could not provide clear responses. These findings suggest that while elements of the OHSMS are operational, gaps in systematic evaluation and dedicated management reviews limit its overall effectiveness.



Acknowledged Improvements Insufficient Efforts Observing Changes/Undecided

Figure 4.11: Perceptions of OHS performance improvement over the past five years.

For Objective B, to identify the roles and responsibilities of stakeholders in the OHSMS implementation and management, the study highlighted that the university utilizes a forum chaired by the Vice-Chancellor to discuss various university matters, including health and safety concerns. Although these forums are not exclusively dedicated to OHSMS evaluation, they provide a platform for stakeholders to address health and safety issues alongside other organizational topics. This reflects a commendable level of awareness and engagement at a high organizational level but also underscores the need for structured and formalized management review meetings to ensure specific accountability for health and safety management.

In addressing Objective C, to evaluate how effectively the OHSMS is implemented for managing occupational health and safety, the study found that the absence of formal management review meetings presents a limitation. While respondents noted improvements in incident reporting and health and safety awareness, the lack of dedicated review mechanisms for analysing performance metrics, incident reports, and feedback poses challenges to systematic evaluation and continual improvement. Brijlall (2015) emphasizes the importance of management review meetings for assessing OHSMS effectiveness and identifying areas for improvement, while Shubani (2010) highlights that the review process should include audit reports, investigation findings, and relevant communications to drive ongoing enhancements.

For Objective D, to determine Occupational Health and Safety documentation compliance, the findings indicate that while health and safety concerns are discussed at the Vice-Chancellor's forum, the absence of formal management review meetings limits the documentation and follow-up of specific OHSMS-related actions. Proper documentation of review activities, feedback, and follow-up records is essential for ensuring compliance with OHS policies and standards. Shubani (2010) observed similar challenges in selected universities, where the lack of management reviews hindered continual improvement, even with existing auditing schemes.

The findings highlight that while the university has made progress in raising health and safety awareness and improving incident reporting, the lack of formal management review processes limits systematic evaluation and continuous improvement. Establishing dedicated review mechanisms and enhancing documentation practices would strengthen the university's OHSMS and ensure more effective health and safety management. These actions align with recommendations from Brijlall (2015) and Shubani (2010), emphasizing the critical role of structured management reviews in driving ongoing enhancements and ensuring compliance.

4.13 Observations of roles, attitudes, and behaviours during evacuation drills in a university setting

4.13.1 Roles of participants during the emergency evacuation drills

The majority of participants, including staff and students, demonstrated a strong adherence to emergency procedures under the guidance of various personnel such as OHS Representatives, Fire Marshal, Head of Departments (HODs), Fire Safety Officers, and Security Officers. This indicates a clear understanding of their respective roles in emergency situations. Support was effectively provided to individuals requiring additional assistance, such as those using wheelchairs, reflecting a commitment to ensuring the safety and well-being of all individuals involved. The Emergency Team, comprising OHS Representatives, Fire Marshal, Head of Departments (HODs), Fire Safety Officers, and Security Officers of the university, effectively communicated essential information during the drill and followed prescribed protocols for shutting down equipment and safeguarding important documents. They successfully guided the majority of participants to their designated emergency exits in a calm and prompt manner, ensuring that everyone was safely gathered at designated assembly points. A study by Aslam (2019) aligns closely with the current study in emphasizing the critical role of crisis management team members whose responsibilities mirror real-life situations. The Emergency

Team in this study comprises legally appointed OHS Representatives, Fire Marshals, Heads of Departments (HODs), Fire Safety Officers, and Security Officers, Aslam (2019) highlights the importance of having role players in a crisis management team who are prepared to act as they would in actual emergencies. Research by Bahmani (2023) suggests that for university students, group leadership could be a practical alternative to traditional evacuation guidance, considering their age and ability to recognize and respond to risks. The study also indicated that evacuations for young pupils could be faster if guides were selected from within their same age group. While previous studies have explored the impact of varying the number of guides on evacuation efficiency, further research is needed to determine the optimal number of guides and their strategic placement. Additionally, Bahmani (2023) emphasized the importance of students' familiarity with the school environment in facilitating movement during emergencies, highlighting the need for sufficient spatial information during the preparedness phase to ensure safer evacuations. The use of evacuation simulations has been shown to significantly improve students' awareness. In conclusion, the study underscores the importance of a well-coordinated Emergency Team, thorough emergency preparedness, proper guidance, and effective leadership in enhancing evacuation efficiency. It also calls for further research to optimize the number and strategic placement of evacuation guides to improve safety outcomes during emergencies.

4.13.2 Attitude of participants observed during the emergency evacuation drill

Observation of a positive attitude was noted through strong adherence to evacuation procedures and helping others, reflecting a favourable disposition toward safety protocols. Effective leadership, clear communication, and well-coordinated emergency procedures demonstrated by the emergency team had a substantial impact on how participants responded to safety protocols. A well-organized and structured drill instilled confidence, demonstrated teamwork, and fostered a culture of safety among participants, regardless of their educational backgrounds. Conversely, a negative attitude was observed in one of the campuses, where some participants hesitated to evacuate as they recognized it was a drill, revealing a lack of seriousness. Instances of confusion in some campuses highlight the necessity for improved training or clearer communication. In alignment with the study by Al-Zyoud (2019) referenced in the research by Carvalhais (2023), it is evident that attitudes towards safety protocols and emergency procedures have a significant impact on overall emergency preparedness and response. The findings suggest that weaknesses in staff responses to specific emergency incidents, such as the proper use of fire extinguishers, can influence students' attitudes and knowledge of safety measures. By integrating innovative approaches like game-based programs to enhance fire safety knowledge and attitudes, as recommended by Carvalhais (2023), organizations can effectively engage occupants in the learning process and foster a proactive and safety-conscious environment. This highlights the importance of addressing attitude-related challenges through targeted training and educational interventions to improve overall emergency readiness and response capabilities.

4.13.3 Behaviour of participants observed during the emergency evacuation drills

According to Bahmani (2023), one of the most observed behaviours during evacuation is "backtracking behaviour," meaning the individuals tend to return to the building to pick up the forgotten or missing belongings. This phenomenon has been observed among adults [89,90] and children, however, the visual questionnaire-based study of primary students declared that younger children are more likely to return to the classroom to pick up forgotten things (Bahmani, 2023). The findings from the emergency evacuation drills conducted at university campuses revealed various behaviours among participants. Instances of rushing were observed in one campus, while delays were noted in another. Additionally, occurrences of panicking and obstructive behaviour were observed in similar campuses, highlighting areas for improvement in stress management during emergencies. The study of Bahmani (2023) highlighted the impact of psychological factors like panic and anxiety on evacuation behaviour. Bahmani (2023) suggests that personality traits such as panic, and anxiety can influence how quickly individuals move during evacuations and how they engage with the evacuation process.

On the other hand, Chang (2020) cited by Bahmani (2023) noted that a lack of real emergency evacuation experience can lead to panic, even among trained students. One potential solution is to improve the disaster coping abilities of school staff. In this current study the participants exhibited negative attitudes, confusion, rushing, delays, and panicking, underscoring the need for enhancements such as addressing negative attitudes, improving training, enhancing communication, and managing stress during emergencies. Furthermore, a study by Lovreglio (2022) analysing pre-evacuation behaviour during evacuation drills and unplanned evacuations in a university library in New Zealand found that certain behaviours like group evacuations and collecting personal items significantly increased pre-evacuation times, emphasizing the importance of managing stress and improving training in emergency situations. The findings from various studies, including those by Bahmani (2023) and Lovreglio (2022), indicate that psychological factors such as panic, anxiety, and stress significantly impact evacuation

behaviour. Common behaviours observed during evacuations include backtracking to retrieve forgotten items, rushing, delays, and panicking. These behaviours highlight the need for improvements in emergency preparedness, such as better training, enhanced communication, and effective stress management strategies. Specifically, the current study's participants displayed negative attitudes and confusion, further underscoring the necessity of addressing these psychological factors to improve evacuation processes and safety outcomes.

4.14 Document review of Occupational Health and Safety records

The organization is advised to document its processes in accordance with the requirements of relevant standards (Constantine, 2018). According to ILO guidelines (2001), the documentation for Occupational Health and Safety Management Systems (OHSMSs) should be clearly written and presented in a manner that is easily understandable for users. It is crucial that OHSMS documentation undergo regular reviews, necessary revisions, effective communication, and be readily accessible to all relevant stakeholders within the organization, as outlined by ILO standards (2001). Additionally, following ILO standards (2001), OHS records must be established, managed, and maintained locally to meet the organization's needs. These records should be identifiable, traceable, and have specified retention times assigned to each record as per ILO guidelines (2001).

In this study, a thorough review of various documents revealed key insights into the university's OHS practices. The reviewed documents included the OHS Policy, OHS Procedures, Hazard Identification and Risk Assessment Registers, Incident Statistics Reports, OHS Training Records, and records of OHS Committee Establishments. These documents, sourced from digital files, physical archives, departmental repositories, and stakeholders, provided valuable information on the university's safety protocols and practices. The findings from this document review are as follows:

4.14.1 Review of Occupational Health and Safety Policy of the university

The university has recently approved an Occupational Health and Safety Policy, endorsed by the Vice-Chancellor, and scheduled for review every five years. This policy affirms the university's dedication to upholding a safe, hazard-free environment for its staff, students, contractors, and visitors, in accordance with the Occupational Health and Safety Act 85 of 1993. It also highlights a commitment to environmental protection, surpassing the standards outlined in the National Environmental Management Act 107 of 1998. The OHS Policy outlines key commitments such as striving for zero OHS incidents, conducting risk assessments,

surpassing legal obligations, preventing occupational health issues, reducing raw material consumption, implementing efficient waste management, providing essential OHS training, promoting awareness, and continually enhancing OHS performance. The responsibility for the policy's effectiveness is shared across the university and is reviewed every three years or as necessary. While the policy aligns with Section 7 of the OHS Act 85 of 1993, it is not visibly displayed as mandated by Section 7(3) of the Act. Shubani (2010) recommends that senior management should develop OHS policies to demonstrate their commitment to safeguarding employee health and safety by minimizing illness and accidents. Institutions like the Australian National University (ANU), Imperial College London, and the University of Galve have also established robust health and safety policies to ensure a secure environment for their stakeholders (Shubani, 2010).

4.14.2 Review of Occupational Health and Safety Procedures

The Occupational Health and Safety department has established multiple protocols to adhere to Section 7(2) of the OHS Act 85 of 1993, which requires Health and Safety Policies to be supported by relevant guidelines. This research has pinpointed key protocols created for the efficient implementation of OHS Policies. These protocols encompass incident reporting, delineation of roles and responsibilities, hazard identification, OHS training, and emergency drills, ensuring thorough management of health, safety, and environmental risks within the university. According to Section 14(c) of the OHS Act 85 of 1993, employees are obligated to adhere to lawful health and safety directives and protocols established by the employer or authorized personnel. Rahmi (2021) underscores the significance of clearly defined OHS Management Systems. Maseko (2016) stresses the employer's responsibility to furnish secure operational procedures and engineering measures to mitigate exposure to risks. This research reveals that there are still some protocols in the developmental phase, highlighting the ongoing endeavour to enhance the OHS management system. The study underscores the importance of management commitment and well-defined procedures.

4.14.3 Review of Hazard Identification and Risk Assessment Registers

The OHS department at the university has introduced a risk register template for departments and faculties to record their risk assessments and integrate preventive measures. Nevertheless, these risk registers are not being assessed regularly, as stipulated by the Occupational Health and Safety Act 85 of 1993. According to Maseko (2016), conducting risk assessments is a legal

obligation to identify and mitigate potential hazards to employees' health and safety, as specified in Section 12(1)(a) of the revised OHS Act 85 of 1993. Maseko (2016) also discovered in their research that many employers lacked suitable control measures, such as baseline risk assessments, leading to increased risks of employee injuries and illnesses. This oversight not only raised financial risks for employers, including higher compensation claims, medical expenses, and costs related to recruiting and training new employees but also compromised employee safety. Therefore, the creation of a risk register template by the university's OHS department represents a positive stride towards complying with legal requirements. However, the absence of regular evaluations diminishes its efficacy. Consistent review and enforcement of control measures are essential in mitigating health and safety risks and averting financial burdens on employers. Ensuring adherence to these protocols will substantially bolster the safety and welfare of employees, aligning with both the OHS Act and the best practices advocated by Maseko (2016).

4.14.4 Evaluation of incident reports

According to the current findings as shown in Table 4.1, the overall number of incidents has displayed minor fluctuations, with a decline in 2022 followed by a slight upturn in 2023. Nearmisses have exhibited a consistent decrease over the years, reaching zero in 2023. The number of first aid cases has also notably decreased, with only one case documented in 2023. Conversely, cases requiring medical attention have risen, particularly in 2023. While disabling incidents decreased in 2022, they experienced an increase in 2023. There have been no reported fatalities in the past three years, with only one case of occupational disease in 2022 and none in subsequent years. This data underscores specific areas that necessitate improvement, particularly in reducing disabling incidents and cases requiring medical attention. Although the decline in near-misses and first aid cases is encouraging, the overall rise in total incidents and more severe cases demands attention.

Year		2021	2022	2023
Total Number	of	35	33	37
incidents				
Near-Misses		2	1	0
First Aid		5	4	1
Doctor Cases		4	5	9
Disabling Incidents		24	22	27
Fatalities		0	0	0
Occupational disease		0	1	0

 Table 4. 1: Annual Incident Report (2021-2023)

As Mohammedi (2018) posits, well-documented and analysed accidents and near-misses can offer valuable insights for future prevention. Scrutinizing accident reporting forms can unveil recurring incidents with common causes that could be averted through corrective actions. Esterhuyzen (2017) proposes that evaluating the performance of the OHS management system can be gauged by examining compensation claims linked to workplace incidents and accidents, utilizing statistics from the Compensation Fund as an indicator of incident and accident rates in South Africa. Maseko (2016) underscores the significance of employee engagement in health and safety affairs, including reporting accidents and unsafe conditions through OHS Representatives and OHS Committees and reviewing accident data. These findings contrast with section 14(d) of the OHS Act 85 of 1993, which mandates employees to report any unsafe or unhealthy conditions to the employer or health and safety representatives, and section 14(e), which requires incidents to be reported promptly.

4.14.5 Occupational Health and Safety Training Records

4.14.5.1 OHS Representatives training

According to the records here has been a consistent decline in the attendance of participants in OHS Representatives training each year, indicating a potential reduced necessity or a shift towards alternative training methods or topics. Coulson (2018) emphasizes that all Health and Safety Representatives are entitled to training without loss of pay, as mandated by the OHS Act 85 of 1993.

4.14.5.2 First Aid Training (Level 1)

In the case of First Aid Level 1 Training, there was a notable decrease in 2022 but a significant increase in 2023, reaching the highest number of participants over the three-year period. This pattern could suggest a renewed focus on first aid skills. Lingard (2017) discovered that first aid training led to a reduction in workplace injuries and an increase in safety awareness, with trained individuals displaying greater willingness to adopt safe practices. Lingard (2017) research proposes that first aid training can complement traditional OHS programs by providing positive motivational influences, which carry significant implications for OHS training strategies.

4.14.5.3 Training of Fire Marshals

While participation in Fire Marshal training highlighted an increase from 2021 to 2022, there were no participants in 2023, possibly due to financial constraints. According to Curlett (2023), trained fire marshals play a vital role in identifying and mitigating fire hazards, ensuring adherence to fire safety regulations, and safeguarding both employees and property. Regular and refresher training is essential to maintain their proficiency and readiness for emergencies. Esau (2015) states that the Safety, Health, and Environment (SHE) department at the university supports both the employer and employees in upholding compliance with occupational health and safety regulations, human rights, and ethical standards across all university activities. One of the services provided is fire safety training. However, a review of training records revealed that, beyond the initial training given to OHS Representatives, First Aiders, and Fire Marshals upon appointment, employees did not receive regular updates to improve their readiness for fulfilling their duties (Esau, 2015). In contrast, Adisa (2020) highlighted fire safety measures in university student housing, including alarms, extinguishers, blankets, assembly points, hydrants, detectors, and sprinklers in academic buildings. However, concerns were raised about dysfunctional fire alarms due to vandalism, the absence of smoke detectors and sprinklers in residences, infrequent safety inspections caused by personnel shortages, and the lack of a Fire Marshal in Student Housing Facilities (SHFs), with only one Fire Marshal assigned to the residence. Considering the low participation in Fire Marshal training in 2023, potential financial constraints, and the emphasized need for continuous training by Esau (2015) and Adisa (2020), universities should place a high priority on Fire Marshal training. It is crucial for the university to consider various strategies, including budget planning, seeking alternative funding sources, cost-sharing, efficiency enhancements, exploring alternative training methods, giving priority to training programs, and integrating long-term financial planning. These measures are essential to ensure the efficient implementation and upkeep of fire safety measures across all university facilities. Providing regular training and updates for fire marshals, along with tackling the identified issues in SHFs, are critical steps in improving fire safety and emergency readiness on campus.

4.14.5.4 Legal Liability Training for Head of Departments

Interest in Legal Liability Training has been on the rise, starting with 7 participants in 2022 and increasing to 17 in 2023. Ghahramani (2016) underscores the importance of ongoing OHS training in enhancing the effectiveness of OHSAS 18001. Lingard (2017) highlights the role of training in fostering a positive safety culture and improving OHS performance. Tappura (2017) stresses the significance of leadership training for managers, given their critical role in OHS performance, even though the OHSAS 18001 specification does not specifically focus on manager training or appropriate development actions. Therefore, maintaining a variety of continuous OHS training programs, including OHS Representatives, First Aid, Fire Marshal, and Legal Liability training, is essential for upholding and enhancing workplace safety. These programs ensure compliance with legal obligations, cultivate a culture of safety, and equip employees with the essential skills to effectively manage emergencies. Overcoming challenges related to funding and participation, particularly in critical training domains, is crucial for sustaining these advantages.

4.14.6 Review records on the establishment of Occupational Health and Safety Committees

According to Section 19 of the OHS Act 85 of 1993, employers are required to form a Health and Safety Committee when two or more Health and Safety Representatives are appointed. One of the committee's responsibilities is to conduct health and safety meetings at least once every quarter. This research focuses on the university's OHS department's consistent monitoring of progress towards the goal of establishing 12 OHS Committees. As depicted in Figure 4.12, there has been a consistent increase in the number of committees annually. That is in 2021 there was 4 (33.3% of the target), 6 in 2022 (50% of the target), and 8 in 2023 (66.7% of the target).



Figure 4.12: Development of OHS Committees compared to target (2021 – 2023)

Despite this progress, the goal of establishing the targeted number of OHS committees has not been met in any of the last three years. The narrowing gap between the target and actual performance signifies positive advancement. Esterhuyzen (2017) points out that small businesses often lack safety committees and structured OHS oversight, leading to unfavourable OHS incidents. Lazim (2022) emphasizes the importance of establishing a safety committee for effective safety management, with leaders following the committee's recommendations to promote a positive safety culture among staff and students. It is recommended for the university therefore to identify and address obstacles that impede reaching the target, ensure the availability of adequate resources (such as personnel, funding, and training), and enhance efforts to involve stakeholders and raise awareness about the importance and benefits of OHS committees.

4.15 Conclusion

The study aimed to assess the effectiveness of the Occupational Health and Safety Management System (OHSMS) at a university in South Africa. It found that while there was strong awareness of policy compliance, with 97% of respondents familiar with the OHS Act 85 of 1993, there were notable issues in communication and enforcement. Some respondents, accounting for 3%, were unaware of the Act's provisions. Although most respondents fulfilled their roles, deficiencies in incident reporting and communication highlighted areas requiring attention. Key challenges included infrastructure upkeep, insufficient resources, and procedural

delays, identified by 40% of participants as significant obstacles. Hazard identification primarily relied on inspections by OHS Representatives, although some departments lacked regular reviews, leading to inconsistent hazard management. While 65% of respondents deemed resource allocation adequate, 35% reported delays and shortages. Participation in OHS Representative training showed a decline, while First Aid training saw an increase, suggesting potential gaps in ongoing safety education. Progress was made in establishing OHS committees, achieving 66.7% of the intended number, though falling short of the overall goal. Observations during emergency drills indicated general compliance with procedures, yet some instances of confusion and haste underscored the need for improved training and communication. Document reviews revealed that although the OHS Policy was approved, it was not visibly displayed as mandated by law, and risk registers were not consistently reviewed. Incident reports emphasized the need for improvement, particularly in reducing disabling incidents and ensuring consistent hazard assessments.

To address these issues, it is recommended to enhance policy communication and enforcement, reinforce roles and responsibilities, and improve infrastructure and resource management. Regular hazard assessments should be conducted, and efforts made to increase training participation by overcoming potential barriers. Expanding OHS committees, enhancing emergency procedures, and implementing regular management reviews are crucial steps. Improving documentation practices, such as ensuring the visible display of the OHS Policy, completing required protocols, and conducting regular reviews of risk registers, will further strengthen the university's OHSMS. Implementing these recommendations will enhance the system's efficiency and effectiveness, fostering a safer working and learning environments for all stakeholders.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study aimed to assess the Occupational Health and Safety Management System (OHSMS) at a university in South Africa and had three primary objectives: to determine if an OHSMS is in place, to identify the roles and responsibilities of stakeholders in its implementation and management, and to evaluate its effectiveness in managing occupational health and safety. The findings confirmed that an OHSMS exists at the university, evidenced by the established policies, procedures, and documented practices. However, while the system is in place, its implementation revealed significant gaps and areas needing improvement. Firstly, the roles and responsibilities of stakeholders were generally understood, with 75% of respondents meeting their obligations under Sections 8 and 14 of the OHS Act 85 of 1993. However, issues such as inconsistent incident reporting, employee complacency, and communication gaps were identified, indicating a need for clearer delineation and enforcement of duties. Additionally, the findings highlighted the need for enhanced stakeholder engagement and training to ensure thorough understanding and execution of roles. Secondly, the effectiveness of the OHSMS implementation was mixed. While there was a high level of awareness and commitment to policy compliance, key challenges such as infrastructure maintenance, resource shortages, and procedural delays were prominent. Hazard identification and risk assessment processes were in place but lacked consistency and regular review, which undermined their effectiveness. Training programs saw fluctuating participation rates, with notable declines in some areas, underscoring the need for continuous and accessible training opportunities. Overall, the study concludes that while the university has established an OHSMS and defined stakeholder roles, the system's effectiveness is hindered by implementation challenges. Addressing these challenges through improved communication, resource management, regular hazard assessments, enhanced training, and proactive stakeholder involvement is essential for the OHSMS to function optimally and ensure a safe working and learning environment at the university.

5.2 Limitations

The study primarily focused on a single university in the Western Cape Province of South Africa but sought to broaden its scope by conducting a literature review to assess occupational health and safety (OHS) compliance at other universities. This approach aimed to provide a more comprehensive understanding of OHS practices beyond the selected institution. However, it is important to note that the study's reliance on a limited number of data collection methods such as interviews, emergency evacuation drills, and document reviews at a single university may have restricted the breadth and depth of insights gathered. Despite these limitations, the inclusion of a literature review on OHS policies from other universities' websites serves to complement the study's findings and enrich the discussion on occupational health and safety management practices.

5.3 Recommendations

To enhance the efficiency and effectiveness of the university's Occupational Health and Safety Management System (OHSMS), several key recommendations are proposed. Firstly, improving policy communication and enforcement through comprehensive training programs and effective communication strategies is crucial, ensuring all stakeholders are familiar with the OHS Act 85 of 1993. Reinforcing roles and responsibilities by providing regular training and clearly defining duties will ensure consistent compliance. Addressing resource shortages and maintenance issues promptly will improve infrastructure and resource management. Conducting regular and systematic hazard assessments, along with proactive hazard management, is essential. Increasing training participation through alternative methods and overcoming barriers will ensure comprehensive safety education. Expanding OHS committees and enhancing stakeholder involvement will foster a collaborative approach to health and safety. Improving emergency procedures through frequent drills and stress management training will enhance preparedness. Regular management review meetings and continuous improvement efforts will keep the OHSMS effective and up to date. Finally, ensuring comprehensive and accessible documentation, along with regular protocol reviews, will reinforce the importance of safety policies and foster a culture of safety across the university. Implementing these recommendations will create a safer working and learning environments for all.

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