THE KNOWLEDGE, ATTITUDE AND PERCEPTION CONCERNING OCCUPATIONAL HEALTH AND SAFETY AMONG STAFF IN THE TECHNICAL DIVISION OF THE TURFLOOP CAMPUS UNIVERSITY OF LIMPOPO

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DECLARATION

I declare that the work herein submitted as a thesis for Master of Public Health resulted from my own investigation and that it has neither wholly nor partially been presented as a thesis for a degree in this University or elsewhere.

Work by other authors which served as source of information have dully been acknowledged by references to the authors.

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ABSTRACT

The study examined knowledge, attitudes and perception of workers and managers at the Technical Division of the Tufloop Campus, University of Limpopo concerning occupational health and safety.

Sixty two (62) workers and four (4) managers completed questionnaires in order to measure the knowledge, attitude and the way they perceive their workplace regarding Safety, Health and Environment (SHE). Participants were drawn from both permanent and contract workers in the Technical Division. The questionnaires were coded and analyzed quantitatively using the Statistical Package for Social Sciences (SPSS) program.

Both managers and workers knew that occupational health and safety is important at the workplace and their attitude was positive. There was a significant difference between the workers knowledge compared to that of the managers probably because the managers received training regarding occupational health and safety while the workers did not receive any form of training. Workers perceived occupational health and safety as the responsibility of the managers or employers who should supply personal protective clothing equipment and process compensation claims in case there is any injury regardless of the cause of the incident.

Most of the workers could not explain whether their health problems were work related or not. They could not mention nor list relevant personal protective equipments for a specific kind of work they do. Workers in the Technical Division did not know of any health and safety committee or representative for their workplace.

Both managers and workers agreed that they do not have a copy of the Occupational Health and Safety Act (Act no. 85 of 1993) which is a reliable source of information regarding occupational health and safety. They also did not have an

occupational health and safety policy and programme which guide their practices within the Technical Division.

Training and education implied by the Occupational Health and Safety Act (Act 85 of 1993) were only effected for the managers at the Turfloop Campus, other employees did not receive any form of training related to occupational health and safety

RECOMMENDATIONS BY PARTICIPANTS

About 2% of the participants recommended safety at work, 2 % of them, felt strongly about compensation for injuries, 3% mentioned the need for a health and safety office, 3 % recommended the health and safety committee, 5 % mentioned safety officers, 23 % recommended that personal protective equipment should be available, 10 % recommended training on occupational health and safety while 52 % did not know what to recommend.

GENERAL RECOMMENDATIONS

The technical Division can improve its occupational health practices if an occupational health and safety policy statement can be designed. This is a statement of principles and general rules that serves as a guide for action. Commitment by senior management can ensure adherence to the requirements by OHSA. The health and safety policy is as important as other policies of the organization. The health and safety programme for different workplaces must include the elements required by the health and safety legislation of that particular country. Designing a definite plan of action for occupational health and safety programme can improve lack of knowledge among workers in the Technical Division, University of Limpopo.

TABLES

FIGURES

TABLE OF CONTENTS

CHAPTER 1

1.1 INTRODUCTION

Occupational health and safety are primarily concerned about maintaining the health and well-being of people at the workplace. This is done mainly through hazard control and by restoring the health and wellbeing of those who are injured or exposed to hazards (Harrington et. al., 2000).

Occupational health involves the consideration of a two-way relationship between workers and their health. It also looks at the effects of the working environment on the health of the workers and how it influences their ability to perform the tasks for which they are employed. The main issue is to prevent and not to cure ill health as it arises (Kotze,1997).

South African occupational legislation has existed for years following different commissions of enquiry, including the Milner enquiry of 1902. Legislation is meant to protect workers from the adverse health effects in their workplaces. In order to implement the requirements of such legislation, the employer and the employees should have knowledge, positive attitude and perceive health and safety as an important aspect of their work area as this forms the basis of their productivity.

The anticipation of risks or hazards requires knowledge of harmful effects of substances and the disorders that are attributable to a specific occupational setting. Environmental and Occupational health specialists get this knowledge from toxicology studies whilst that of the disorders is accumulated from the Epidemiological studies. This becomes different from how the workers gain knowledge of the same field of study. The Occupational Health and Safety Act stipulates that workers should be informed about the kind of hazards they are exposed to in their work places.

The International Labour Organisation and the World Health Organization Joint Committee define Occupational Health as "the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations" (Kotze, 1997).

All workers have a pre-existence health status, which is influenced by many factors, some of which are under their direct control. Any illness that is contracted by the employee has to be viewed in this context. Occupational health renders a service when any illness or an injury affects the employee (Harrington et. Al., 2000).

The history of occupational health and safety in South Africa was influenced by the apartheid laws, which only catered for a particular population group. Most people from disadvantaged population groups, who were looking for work in industries, were taken to the mines. According to ILO Report (2002) mines are identified as one of the most dangerous workplaces. Health and safety services were poorly developed in such areas. Occupational diseases developed among the mining workers without any control or compensation to those who became incapacitated. The report further states that the incapacitated workers were told to go back home as they were no longer productive. Some diseases developed long after the workers had retired and no one was aware that their health problems originated from their workplaces

1.2 BACKGROUND AND STATEMENT OF THE PROBLEM

Occupational health and safety programmes within the University of Limpopo (formerly UNIN) were located in the Safety and Security Division. The University began to concentrate more on health and safety when an audit was done in July 2003. Situation analysis is an important instrument to identify the gaps regarding any given problem. In 2003, the Conrad Heberts Environmental Management Consultants(CHEM) conducted a Safety, Health and Environmental audit to establish the Turfloop Campus's current position in regard to the risks by means of an initial review. All safety, health and environmental risks faced by the University were considered as a basis for establishment of the Safety, Health and Environmental Management system. The data collection included the use of checklists, interviews with relevant parties, direct inspection and evaluation of results of previous studies done (SGM2003/273 document on ISO 14001& OHSAS 18001 July, 2003).

According to section 13 of the Occupational Health and Safety Act (Act no. 85 of 1993), the employer has the duty to inform workers about occupational health and safety and section 8(2)(e) of OHSA, indicates the need to provide training.

Knowledge is the most powerful tool available to people as it opens up new possibilities for the exercise of both rights and responsibilities. Information, education and communication of occupational health and safety can improve the level of knowledge, attitude and perception of University employees regarding occupational environmental health and safety.

OHSA stipulates that the employer must maintain a workplace that is safe and without risk to the health of the employee. It also declares that the employer is responsible to do this "as far as is reasonably practicable". The phrase "reasonably practicable" means that appropriate steps must be taken, considering the size and the type of the risk or hazard, the knowledge that is available to find solutions to the risk, suitable means available to remove the risk or hazard and the availability of means to remove the risks (Guild et. Al., 2001).

1.3 CLARIFICATION OF CONCEPTS

- **Audit**

- Audit means a systematic process that is based on the collection and documentation of sufficient objective evidence. It involves analysis, confirmation of procedures, practices and reporting of findings in order to verify whether a facility complies with regulatory or other legal requirements or internal company policies, procedures and practices (Guild, et. Al., 2001).

- **Contractor**

Any person who undertakes work at an operation, on a part-time or full-time basis, but not permanently employed by that operation (Occupational Health and Safety Act,1993 (Act 85 of 1993).

- **Ergonomics**

The science of designing the job and the workplace to fit the worker (Lundy and Janes, 2001).

- **Hazard**

A hazard is a potential to cause harm (Harrington, J.M 2000).

- **Medical Surveillance**

Means a planned programme of periodic examinations (which may include clinical examinations and biological monitoring or medical tests) of employees by an occupational health practitioner or in prescribed cases by an occupational medicine practitioner (Occupational Health and Safety Act (Act 85of 1983).

- **Occupational health**

In 1962, the first Joint International Labour Organisation and World Health Organization Committee on Occupational Health, defined **Occupational health** as the promotion and maintenance of the highest degree of physical, mental and social wellbeing of workers in all occupations, the prevention among workers of ill-health caused by their working conditions and the protection of workers in their employment from risks resulting from factors adverse to health (Mitchel, 2000).

- **Personal Protective Equipment (PPE)**

This is a device designed to protect employees from serious workplace injuries or illnesses resulting from contact with work place hazards. This includes devices such as garments, goggles, overalls, gloves, vests, earplugs, respirators, foot wear(US Department of Labour, 2002).

- **Risk**

Risk refers to the likelihood of harm occurring (Harrington, et. Al., 2000).

- **Safety**

Safety is concerned with the design and implementation of strategies to prevent and control workplace exposure that results in injury or death (Lundy and Janes, 2001).

- **Toxicology**

Toxicology is the study of harmful effects of chemicals on biological systems. In occupational settings, toxicology is primarily concerned with evaluating human health effects posed by workplace chemical exposure, including dust, gases, fumes, mists and vapour (Lundy and Janes,2001).

- **University of Limpopo: Turfloop Campus technical staff**

Technical staff consists of technicians, craftsmen, cleaners and related trade workers, including plant and machine operators in the Technical Division.

CHAPTER 2 LITERATURE REVIEW

2.1 INTERNATIONAL PERSPECTIVE

There are different models for the provision of Occupational Health in various countries. The differences lie in the combination of the Occupational Health team, the range of services they provide, the legislative requirements and framework in relation to the perceived needs by the workers and their employers. Government departments perform some legislative and preventive activities while employers often organise the provision of Occupational Health services for workers. In developing countries such as in South America and Asia, Occupational Health is provided as part of the general medical care for the workforce. In-house medical services are usually only available for larger companies, particularly those that belong to multinational organisations. Big companies employ more workers and have the resources to provide medical facilities. They also have policies and standards which apply to all member companies worldwide. The developing countries lay emphasis on the treatment of illnesses which may be occupational or non-occupational in origin and have fewer resources for occupational health preventive programs (Harrington et., al 2000).

In countries like Malaysia, some companies have their own clinics and hospitals which take care of their local workers and their families. Other companies concentrate on curative services because there are limited medical facilities in developing countries. Preventive occupational health functions are often organised in a separate Health and Safety Department, which includes environmental aspects (Harrington et. al., 2000).

In countries like Chile, occupational physicians who concentrate on the recognition and treatment of occupational diseases with less emphasis on workplace visits and assessments to identify potential hazards and to recommend corrective actions. The Malaysian model of occupational health can be a case study as these services may be provided in other developing countries. The Malaysian Ministry of Health is responsible for satellite government occupational health clinics which also serve as a source of information and advice. The Human Resources

Department in Malaysia enforces occupational health and safety legislation (Harrington et. al., 2000).

The Canadian' Centre For Occupational Health and Safety recommend the Health and Safety programmes at workplaces. Some form of a program is required under occupational health and safety legislation in Canada.

A health and safety programme is a definite plan of action designed to prevent accidents and occupational diseases. A health and safety programme must include the elements required by health and safety legislation.

A Programme developed for one organization cannot necessarily be expected to meet the needs of another. A summary of the Canadian health and safety programme can assist other organizations to develop programmes to deal with their specific needs (see Box 1).

Based on the Canadian' Centre For Occupational Health and Safety, there should be an occupational health and safety policy statement within the organization. This is a statement of principles and general rules that serves as a guide for action. Senior management must be committed to ensuring that the policy is carried out with no exceptions. The health and safety policy is as important as other policies of the organization.

Box 1 : The general elements of the Canadian Health and Safety Programme

Individual responsibilities

- Health and safety is the joint responsibility of the managers and workers;
- Management is accountable for non-compliance to health and safety legislation;
- All health and safety activities are based on specific individual responsibilities.

Workers responsibilities

- Using personal protection and safety equipment as required by the employer;
- Following safe work procedures;
- knowing and complying with all the regulations;
- Reporting any injury or illness immediately;
- Reporting unsafe acts and unsafe conditions;
- Participating in joint health and safety committee.

First line supervisors

- Instructing workers to follow safe work practices;
- Enforcing health and safety regulations
- Correcting unsafe acts and unsafe conditions;
- Ensuring that only authorized and trained workers operate equipment;
- Reporting and investigating all accidents/incidents;
- Inspecting own area and taking remedial action to minimize and eliminate hazards;
- Ensuring equipment is properly maintained;
- Promoting safety awareness in workers.

(Canadian National Occupational Health and Safety Resource Oct.1998).

These duties are often not well known and therefore, it is important to include details of specific individual responsibilities in the safety programme.

To fulfill individual responsibilities, people must:

- know what their responsibilities are;
- communicate with each other;
- have sufficient authority to carry out such responsibilities (organizational issues); and
- have the required ability and competence through training.

Once the criteria are met, safety performance can be assessed by each individual's supervisor on equal basis with other job elements.

The Canadian Centre for Occupational Health and Safety believe that health and safety is not just an extra part of an employee's job; it is an integral and full time component of each individual's responsibilities (http://www.ccohs.ca/oshanswers/2004).

The International Organisation for Standardisation is the network of the National Standards Institute of 147 countries. There is one representative per country, with a central Secretariat in Geneva, Switzerland that co-ordinates the system. It is a non-governmental organization that occupies a special position between the public and the private sector. Some of the member institutes are part of the governmental structures in their countries while others come from private sectors. One of the secretariate's aim is to promote the development of standardisation to improve health, safety and environmental protection. The international standards enable the organisation to improve the overall performance in establishing, implementing, maintaining and ensuring continuous improvements for the safety, health and environmental management systems (University of the North Industrial Relations Report, July 2003).

In developed countries such as Australia, occupational health services are mainly preventive in function and successful measures have been introduced to reduce workplace exposure and to prevent occupational diseases in some industries. This has resulted in occupational health attention directed towards health promotion, workplace assessment and health surveillance.

Other occupational health services include pre-employment assessments, periodic medical examinations, post sickness review, health education, counselling, treatment and rehabilitation (Harrington, 2000).

A booklet prepared by the Australian Occupational Health and Safety Office provide guidance on standards regarding office environment, keyboard equipment, rest breaks and basic occupational health hazards. However, for this study more emphasis will be put on office environment and ozone as they relate to the work environment for administrators in the Techinical Division.

Office environment:

- Room temperature

The room temperature should be between 21 ' – 24 ' Celcius for both offices and factories in summer.

A desk situated in direct sunlight will be much warmer than the average temperature in the office. Air conditioning can have impact on the temperature of the office. Some older personal computers can generate much heat as small electrical bar heaters raise the temperature above the room average. This problem can be compounded by clustering of computers in one particular section of the office.

- Humidity: refers to amount of water vapour in the air.

Humidity should be at the range of 40-60 per cent. Low humidity will cause dryness of the eyes, nose and throat. This can also increase the frequency of static electricity shocks. High levels of humidity may cause fatigue and stuffiness. Air conditioning experts should continuously conduct reviews.

- Ventilation: refers to the movement of air and the rate of fresh air input.

A minimum rate of 10 litres per second is the acceptable quality of in-door air recommended for each person in a general office space or 10 litres per second for every 10 square metres of floor space.

Contaminants in the office can include viruses, bacteria, mould spore, dust, solvent vapours or chemicals generated or used in the building. Stale air due to poor ventilation and excessive heat build up or humidity can contribute to air contamination. Environmental tobacco smoke is an indoor contaminant and there is growing recognition that non-smokers may suffer adverse health effects through inhalation of tobacco smoke.

Preventive measures:

- Effective air filtration;
- Ensure that adequate amounts of fresh air enter the building;
- Maintenance of air conditioning units, including regular cleaning;
- Preventing the obstruction of vents;
- Locating equipments using solvents in areas with substantial air movement and /or installing local exhaust ventilation;
- Limit passive smoking risks in offices by implementing the non-smoking policies.

Ozone problem

Photocopiers and laser printers produce ozone gas during operation. Ozone does not build up in the air. It breaks into Oxygen quickly after its release into the air. Concentrated ozone above the exposure limits, can cause:

- eye irritation;
- upper respiratory tract irritation;

- headache;
- temporary loss of the ability to smell.

These symptoms are similar to those of the "sick building syndrome" with the addition of dry skin, dizziness and nausea. It is believed that the syndrome is caused by a combination of poorly adjusted ventilation, air conditioning, temperature, humidity, lighting and psychological factors such as stress, management style and tedious work schedules.

Investigations carried out by the Australian Work Cover Authority indicate that Modern photo copiers and printers fitted with ozone filters do not present any health hazard provided they are properly maintained. Therefore, equipment should be regularly checked and serviced to ensure that the ozone filter is fitted to photo copiers and laser printers.

Studies in the United states studies have shown that plants reduce the level of toxic substances such as formaldehyde, benzol and carbon monoxide in the air. Some useful plants in the office are Chinese evergreen, Madonna Lily, Warenkii, Mother-in-laws tongue, Heart leaf, corn plant, English ivy, pothos, Madagascar dragon tree (The Australian Act, Occupational Health and Safety office).

Little has been written about knowledge, attitude and perceptions of workers related to occupational health and safety. Much of the literature has focused on compliance, services, role of Occupational Health practitioners and the use of personal protective equipment.

2.2. SOUTH AFRICAN SITUATION

In South Africa, occupational health and safety services were poorly developed and lag behind compared to other countries. This is evidenced by several employment areas that do not have occupational health and safety programmes as required by the OHSA. This legacy is a result of the fragmented and conservative legislative provisions that used to focus on a specific worker's needs of a white race. There were many grey areas with parallel systems developing in the mining and non-mining industries. The general health of the workers received little or no

attention at that time. The Department of Health and various other authorities maintained a low profile in these services. There were no specific activities for occupational health and Safety in the workplace (Kotze, 1997).

After the Milner Commission of Enquiry which was established in 1902, occupational health and safety services became officially established in South Africa. The Erasmus Commission (1975) and the Wiehahn Commission (1977) were also appointed to report on the following: (Kotze, 1997)

- nature, incidence and extent of occupational diseases in South Africa;
- statutory measures, facilities and their effectiveness;
- manpower situation with regard to occupational health; and
- health control in the workplace;
- protection of communities against the environmental pollution resulting from industries.

There were no clear rules and policies regarding occupational health and the Department of Manpower (now Labour Department) was responsible for all manpower policies. Workplace conditions started to improve due to public pressure from concerned groups. Occupational health and safety experts from developed countries such as Australia were invited to visit South Africa so that they can assist in the improvement of occupational health services (Kotze, 1997).

In 1993 the South African government passed the Occupational Health and Safety Act (Act 85 of 1993). After 1994 the developments in the area of occupational health and safety emphasised the development of health services, subsequently, there was an overhaul of laws and policies governing health and safety. A renewed emphasis was also noted within the Department of Health to ensure provision of adequate health services at workplaces (Department of Health Report: 1999).

The effects of diseases and injuries on the workforce impact on the productivity and the socio-economic well-being of the workers, their families and dependents. According to the Department of Health Report 1999, the cost of work-related health and associated productivity contributes to the total Gross National Product (GNP) of this country. To address the health problems, a complete understanding of the interaction among the various internal and external factors that influence the health of human beings is required. The need for occupational health and safety services should be based on the occurrence of occupational injuries and diseases (Department of Health Report: 1999).

According to a Department of Labour leaflet (2001), Labour Department plans, programmes and policies should be reinforced by initiating workplace health and safety programmes, which will ensure compliance with the Occupational Health and Safety Act for the workplace. Employers and employees in different institutions should be responsible for the implementation of these programmes. The Occupational Health and Safety Act requires the employer to bring about and maintain as far as reasonably practicable a work environment that is safe and without risk to the health of the worker.

Health and safety management programmes are compulsory in South Africa and are essential for the benefit of employees, employers and the rest of the country. Many organisations do not comply with the international, national and regional legal requirements. This usually results in major problems when workers are injured on their premises. In any organisation health and safety management should form part of the holistic risk management process to ensure compliance with requirements at all levels. Historically, occupational health and safety have been controlled by a number of laws. It has become an issue in both mining and non-mining industries. The Centre for National Occupational Health in South Africa (which was attached to the Department of Health) now called National Institute for Occupational Health (NIOH) provides specialised occupational health services such as occupational medicine, occupational hygiene, research, occupational information as well as training. Several companies refer their cases to this Centre (A South African Health Review 1999).

2.3 RISK MANAGEMENT AT THE UNIVERSITY OF THE NORTH

The University of Limpopo - Turfloop Campus, which never had a risk management office, has solicited the service of consultants to conduct a risk assessment in 2003. According to the Industrial Relations Report, occupational health and safety on Turfloop Campus was non-existent. The audit done by these consultants serves as the initial activity towards improvement of the occupational health and safety on this campus. Occupational health and safety assessment series was used by the consultants to assess the situation within the University of Limpopo (UNIN Industrial Relation Report, July 2003).

2.4 REGULATORY FRAME WORK

The following are various pieces of legislation which set standards for health and safety in the workplace, and there are several departments in South Africa which administer these Acts.

Table 2.1 Regulatory framework

ACT	FUNCTION	DEPARTMENT
Occupational Health and Safety Act (Act 95 of 1993) as amended by (Act 181 of 1993) The first Act to control conditions in the industry was the Factories, Machinery and Building Works Act (Act 22 of 1941), today known as the Occupational Health and Safety Act (Act 85 of 1993).	It has several regulations including: the Asbestosis Regulations; Regulations Concerning the Certificate of Competency; Facilities Regulations; General Administration; Driven Machinery; Electrical Installation; Environment of the workplace and General Safety (Guild et. al., 2001).	Enforced and administered by the Department of Labour

ACT	FUNCTION	DEPARTMENT
Labour Relations Act 1995 (Act 66 of 1995)	The LRA, mandates worker participation in determining health and safety measures as well as the resolution of disputes on disclosure of information. The employers should disclose to the employees information about risks inherent in every workplace (Guild et. al., 2001).	This Act is enforced and administered by the Department of Labour.
Compensation of Occupational Injuries and Diseases Act 1993 (Act 130 0f 1993)	This Act replaced the previous Workmen's Compensation Act. It ensures that employers provide insurance for the benefits of payment to the employees for work-related injuries, death and disease, regardless of fault. Appendices 14.4 and 14. 5, provide medical cover and compensation for occupational injuries and diseases in all workplaces. The Compensation Fund was established as a provision of this Act. Everyone who renders a service as an employee to an employer is entitled to benefits according to COIDA.	Enforced and administered by the Department of Labour

Basic Conditions of Employment Act 1997 (Act 75 0f 1997)	This Act sets minimum conditions of employment for most workers in South Africa. The significant feature of this Act is the emphasis it lays on the linkage between conditions of employment and the protection of workplace health and safety. The Act requires the employers to take a proactive approach to the impact that the working time arrangements may have on the health of the workers (Guild, et. al., 2001).	Enforced and administered by the Department of Labour

The Occupational Health and Safety Act (Act 85 of 1993) and other legislation like the Basic Conditions of Employment Act (75 of 1997) , the Labour Relations Act (Act 66 of 1995), the Employment Equity Act (55 of 1998) and the Compensation for Occupational Injuries and Diseases Act (130 of 1993), should be strengthened and be reinforced to take care of the health and safety of the workforce for the benefit of the workers , employers and the economy of the country (Guild, et. al., 2001).

The Occupational Health and Safety Act and other legislation listed in table 2.1 should be strengthened and be reinforced to take care of the health and safety of the workforce for the benefit of the workers, employers and the economy of the country (Guild, et. al 2001).

2.5 OCCUPATIONAL INJURIES

According to the Department of Health, there are several policies and guidelines related to health and safety which were passed in 2003 namely: the draft policy framework for the co-ordination of occupational health and compensation competencies, guidelines on developing and maintaining occupational health services and the situation analysis to determine access to occupational health services by communities (Department of Health Report 2003/2004).

According to the Health and Safety Officer in Polokwane municipality, 72 injuries on duty were recorded during the financial year 2003/2004 while 64 injuries were recorded during the financial year 2004 to date. This presents a threatening situation in Polokwane and calls for the protection of workers in the workplace. The Act on Compensation for Occupational Injuries and Diseases (COIDA) requires every employer to document and report all injuries at work (Department of Health Report, 2002).

However, it is not expected of the employer to take sole responsibility for health and safety. The Act is based on the principle that dangers in the workplace must be addressed by communication and co-operation between the worker and the employee. The OSHA requires both employers and employees to be knowledgeable about the hazards in the workplace and both have shared responsibility for health and safety in the workplace (Department of Labour booklet).

For the purpose of this study, only injuries, risks, hazards and ill-health related to different categories of employees within the Technical Division of The Turfloop Campus will be explored.

According to the International Labour Organisation (2000), Table 2.2 below shows different hazards that may cause injuries or ill-health among cleaners.

Table: 2.2 Hazards that are likely occur among cleaners

Accident hazards	Fall of heavy objects on the feet or other limbs
	Electrical shock, defective equipment and installations or contact with live wires.
	Cuts and pricks caused by sharp objects, scrap metal broken glass, etc.
Physical hazards	Exposed to high levels of noise produced by cleaning equipment
Chemical hazards	Exposure to certain types of dust, aerosols during cleaning.
	Exposure to extensively used chemicals, solvents, potentially causing irritation dermatitis, allergies etc.
Biological hazards	Exposure to fungi, potentially causing hypersensitivity reactions due to fungal antigens inhaled with dust, which usually involves pneumonitis with asthmatic symptoms.
	Exposure to mold (particularly when emptying dust collectors, filters etc potentially causing allergic skin conditions.
Ergonomic factors, psychosocial and organizational factors	Repetitive strain injury (RSI) and other musculoskeletal problems as a result of continuous repetitive movements (Scrubbing, over exertion during lifting and moving of heavy loads, working in awkward postures that include: bending on one's knees
	Psychological stress due to dissatisfaction at work as a result of alleged low social status, boredom, monotony, problematic personal relations with peers or supervisors.
	Frequently work in night shifts (sleep disturbances, family problems, etc.)

(International Labour Organization, 2000).

Drivers injuries and their preventive measures

A professional driver has to be alert behind the wheel at all times. Unexpected events on the road require quick thinking and fast reaction, which the driver cannot do when he is tired or

recognized by tension headache, stiff neck, upset stomach, sweaty palms, lack of concentration, irritability, intolerance and constant feeling of exhaustion. Drivers fatigue has been identified as a number one killer on the road. Fatigue can be identified by the following signs and symptoms:

- eyes loosing focus;
- constant yawning;
- lack of concentration;
- battling to keep an even speed;
- not recalling driving for the last few kilometers;
- drifting in and out of traffic lanes; and
- missing the high way exits/ off ramps

Driver safety hints

- Instead of using PPE, get a good night sleep before driving;
- Plan the resting stops ahead of time and stick to the plan;
- Avoid driving when tired - Stop and rest along the way;
- Get plenty of fresh air while driving; and
- Regular checking of mirrors, speed and the road ahead to keep the eyes moving (Fleet*W*atch Initiative and Arrive Alive Campaign Poster).

Office environment injuries or hazards

The modern office environment presents an array of potential hazards that can be avoided by taking simple precautions. Although working in the office has always been considered relatively safe, office workers face occupational hazards that include:

- eye strain;
- over-use syndrome;
- headaches;

Office environment injuries or hazards

The modern office environment presents an array of potential hazards that can be avoided by taking simple precautions. Although working in the office has always been considered relatively safe, office workers face occupational hazards that include:

- eye strain;
- over use syndrome;
- headaches;
- discomfort;
- trips and falls; and
- handling injuries.

Welding hazards

Welding, cutting and brazing are hazardous activities that pose a unique combination of both safety and health risks to more than 500'000 workers in a wide variety of industries. The risk from fatal injuries alone is said to be more than four deaths per thousand workers over a working lifetime. The American Welding Society (AWS) developed a fact sheet covering aspects of safety and health applicable to welding and cutting. It includes subjects such as fumes and gases, radiation, noise and electrical hazards. The fact sheet recommends the electric Arc Welder as the most useful and timesaving piece of the workshop equipment. Properly installed and used the arc welder is very safe but if used improperly the operator can be exposed to a number of hazards including, toxic fumes, dust, burns, fires, explosions, electric shock, radiation, noise and heat stress. It should be known to the welders that chemicals that are often considered "nonflammable" can be combustible or explosive when vaporized.

Some studies suggest that occupational exposures to welding fumes may pose the risk of serious respiratory, neurological and reproductive effects but scientists and policy makers still

face a need for more and better data to determine the occupational exposure limits especially in confined spaces.

Safety and health topics for discussion or training in welding, cutting and blazing include:

- Construction – welding, cutting and blazing;
- Confined spaces;
- Hazards communication;
- Noise and hearing conservation;
- Personal protective clothing.

It is therefore, necessary for the workers to have knowledge of the hazards in their workplace and a positive attitude towards occupational health and safety in order to protect themselves (http://www.osha.gov/SLTC/weldingcuttingbrazing/index.html22/06/2005).

2.6 OCCUPATIONAL DISEASES

In South Africa it is estimated that occupational diseases constitute 0.05% of all compensation claims as certified by the compensation commissioner. Diseases such as pneumoconiosis comprise 77% of all certified claims (Department of Health, 2000).

In August 2002, a comment was made by the Director in the Compensation Office in Pretoria that South Africa is beginning to feel the impact of an increased morbidity rate due to the occurrence of preventable health conditions which occur in the workplaces. It is unfortunate that most South African employers do not understand how the lack of knowledge among workers, health promotion programmes and workplace risks management will adversely affect the corporate world. This is no longer a silent issue as it is backed up by legislation through the Department of Labour and other departments.

2.7 OCCUPATIONAL HYGIENE AND SAFETY

It is the responsibility of the Department of Labour to certify all privately employed occupational hygienists to conduct occupational health and safety assessments at all organisations including the University of Limpopo – Turfloop Campus. The role of an occupational hygienist is to recognise and understand the complexity of work processes. This includes the nature of the material produced, how it is produced, how it is used and how it is disposed of. Occupational hygienists also identify the source and measure the emission and concentration of workplace contaminants to ensure that appropriate control measures can be put in place (Harrington et. al., 2000).

The National Occupational Safety Association (NOSA) also provides support to employer activities like the training of health and safety officers and conducts audits on request. Health and safety representatives are full-time workers who are nominated by colleagues. The employer and the workers do the nominations in joint consultation. Agreement must be reached on the period of office and the duties of the health and safety representative. This agreement must be settled between the employee and the employer (South African Health Review, 1999).

One health and safety representative must be elected to take responsibility for the health and safety of 21 to 100 workers. This designation depends on the number of workers in the workplace and the inspector can make recommendations where the layout of the plant may be of such a nature that one representative is insufficient (Department of Labour booklet).

The link between a hazard and a health effect requires a study of the communities that are exposed. An epidemiologist usually does such a study. A knowledgeable toxicologist could also do the assessment. In most workplaces, safety is usually considered separately from health. This is inappropriate and counter-productive when developing and executing integrated health and safety strategies in the workplace (Harrington J. M et. al., 2001).

2.8 GENERAL PRINCIPLES OF TOXICOLOGY

Harrington et. al (2000) defines Toxicology as the study of substances that can have adverse effects even in relatively low doses. Most substances capable of causing harm depend on many factors such as the dose, the route of administration and the susceptibility of the individual. This subject area is relevant to occupational health professionals as they are interested in preventing ill-health caused by exposure to toxic substances in the workplace, (Harrington, et al 2000). Meyers and Macun (1991) argues that occupational health services are in short supply in most industries with less than 20% of factories and 50% of workers enjoying access to any service.

2.9 GENERAL OCCUPATIONAL HEALTH AND SAFETY

It was in 1962 when the first Joint International Labour Organization and World Health Organisation Committee on Occupational Health defined occupational health as: "The promotion and maintenance of the highest degree of physical, mental and social wellbeing of workers in all occupations and the protection of workers in their employment from risks resulting from factors adverse to health" (ILO Report, 2003).

Historically, occupational health and safety have evolved in the form of a number of laws governing this field of health. Fragmentation, duplication and grey areas have occurred with parallel systems developing in mining and non–mining industries. The Department of Health and various other health authorities maintained a low profile in the provision of these services (Kotze, 1997).

The Compensation of Occupational Injuries and Disease Act (Act 130 of 1993) provides for compensation of disability or death caused by accidents or occupational diseases. Management of impaired employees, in the workplace is now subject to legislative requirements which are stipulated, among others, in the Labour Relations Act (Act 66 of 1995) Schedule 8 and in the Code of Good Practice (Botha et.al., 2000).

It was indicated that the pension fund industry is experiencing ever increasing pressure due to a growing number of members who claim for reasons related to ill-health or injury. Most claims are attributed to socio-political influences in the workplace. Ill-health retirement is regarded as best by employees because it meets their expectations. The expectations are that the claims will be a solution to the employees' financial future problems and they may resolve current financial difficulties. At times managers fail to manage incapacitated employees effectively and some managers have different subsequent perceptions of ill-health. Early retirement as a solution to managerial problems, indicates that there is a need for occupational health services in all spheres of work. Applications for ill-health retirement constitute a substantial burden for pension and provident funds. It is important to make managers aware that from an organisational point of view, incapacity in the workplace should not simply be transferred to the pension and provident funds as there are other measures like sheltered employment that could be taken into consideration (Safety Management 2002).

According to Mitchell (2002), much research has been conducted regarding risk assessment and a number of guidelines are available to determining the level of risks attributed to hazards.

The methodology used for assessment of risk varies according to different guidelines. All these guidelines acknowledge that risk is a function of the likelihood of harm occurring and the severity of harm that may result from the exposure to any agent. What the guidelines do not provide is the scientific method for determining the likelihood of the exposure, or the severity of the outcome of the exposure, because there are different circumstances under which occupational hazards are encountered. Examples given in the study are the needle prick injury in emergency services compared to the same injury in a general health ward where the routine is well planned and not hectic.

CHAPTER 3: RESEARCH FRAMEWORK

3.1 AIM

The aim of the study is to determine the knowledge, attitudes and perceptions of employees with regard to Occupational Health and Safety and to look at what is done about Occupational Health and Safety at the Turfloop Campus, University of Limpopo.

3.2 OBJECTIVE

- to assess the knowledge, attitude and perception of employees concerning occupational health and safety

3.3 STATEMENT OF THE PROBLEM

The research problem poses a number of questions such as the following:

- to what extent are the Technical Division staff members aware of occupational health and safety at the University;
- what is the general attitude of the staff members within the Technical Division regarding Occupational Health and Safety;
- to what extent do the Technical staff members perceive occupational health and safety as well as how these perceptions impact on the productivity of the staff members.

Within the University, each work area could expose employees to one or other risks. Are these risks identified, measured and addressed as a requirement by the Occupational Health and Safety Act (Act 85 of 1993)?

Does the Turfloop Campus comply with the Occupational Health and Safety Act?. Section 8(2)(e) of this Act clearly stipulates that " the employer has the duty to inform the workers about risks inherent in their workplaces". Employees may not have any information about risks involved in their different work areas. Is the University of Limpopo, Turfloop Campus adhering to the general duties of the employer towards the employees, which is to provide and

maintain, as far as reasonably practicable, a working environment that is safe and without risk to the health of the employees? These general duties are clearly stipulated in Section 1 of the Occupational Health and Safety Act (Act 85 of 1993).

Lack of knowledge about occupational health and safety among supervisors and employees is reflected in several ways. Employees would, for example spend more hours away from work attending to minor injuries or emergency health problems like headaches and flu, or they would be looking for contraceptives from government services (clinics or hospitals) outside campus.

What knowledge, attitude and perceptions do the Technical Division staff and the contract workers have about occupational health and safety within the University? The audit conducted by consultants, based on the Health and Safety Assessment Series (OHSAS 18001) reflects that occupational health and safety of the workers do not receive much attention. More attention is given to the core business of the University which is education and academic processes, and yet occupational health and safety is a legal requirement in all workplaces. The occupational health, safety and environmental assessment done in July 2003, regards the Turfloop campus as a workplace.

Employees may not be aware of the need to report injuries on duty unless there are major injuries. The workers may not be aware of the risks inherent in their daily activities until they are injured or until they develop ill health. Some of the illnesses occur long after the worker has stopped working in a specific area. Management of injuries in the workplace is a requirement by the Compensation of Occupational Injuries and Disease Act (Act 130 of 1993).

A lack of control over compensation for injuries on duty may become a financial burden for the employer and for the injured employee. This could result in the University paying huge amounts of money unnecessarily for injured employees.

3.4 DIFINITION OF RESEARCH VARIABLES

There are several variables that can affect the knowledge, attitude and perception of workers towards occupational health and safety at work, such as Occupational health policies, availability of Occupational Health and Safety Act in each department accessible to all workers, role modelling by the managers and those in authority, availability of personal protective equipment, posters and leaflets on occupational health.

- **KNOWLEDGE**

Knowledge is regarded as intellectual acquaintance with facts, truth and principles. It falls under the cognitive domain of learning. Training and education are some of the methods of equipping individuals with knowledge and information about health risks and how such risks can be prevented.

- **ATTITUDES**

Attitudes can be described as perceptions that people have about their environment and other things within that environment. Attitudes can be the reason why people act the way they do. Attitudes about occupational health and safety, however, may be influenced by the following factors:

(1) acquisition of occupational health and safety concepts resulting from knowledge;

(2) comprehension; and

(3) application of occupational health and safety knowledge and individual's belief

Certain variables are necessary for making choices from different alternatives in occupational health and safety practices. These variables include knowledge, attitude, beliefs and feelings about occupational health and safety. This research will look at the same variables among the Technical Division employees of the Turfloop Campus of the University of Limpopo as they are likely to influence occupational health and safety practices in workplaces (Butler, 2000).

- **PERCEPTIONS**

Perceptions are ways of looking at different things. We have two different types of perceptions according to the Health Belief Model: (Butler, 2000).

i) individual subjective perception of risks for contracting the health condition or injury, known as 'perceived susceptibility;

ii) perceived severity of the condition such as disability or injury, dying or other negative consequences.

The Health Belief Model has been one of the most influential and widely used psychological approaches to explain health–related behaviours.

It provides an excellent means to analyze forces that influence health behaviour. It consists of three phases that lead to an action related to health**: modifying factors, individual perception and the likelihood of action.**

Both perceptions of personal susceptibility of ill-health or injuries and the severity of the condition are necessary to modify the behaviour towards the acceptable occupational health and safety practices by employees within the Technical Division of the Turfloop Campus, University of Limpopo (Butler, 2000).

Adherence to occupational health and safety practices and compliance to the rules and regulations as stipulated in the Occupational Health and Safety Act (Act no.85 0f 1993) may be influenced by the knowledge, attitudes and beliefs that workers have.

According to Bedworth and Bedworth (1992), before perception can take place, the individual must be exposed to an educational experience that deals with perceptions as an outcome. Susceptibility and seriousness of the condition have strong cognitive components that are partially dependent on knowledge. This perception is related to knowledge, attitude and beliefs. A positive way of attaining this goal is to emphasize the benefits of the behavior.

Knowledge of the company and the workers, including the history, company culture, policies, programmes, work hazards and workforce trends will be helpful in providing information regarding congruence between the occupational health practitioners philosophy and the organisation's philosophy of health and safety. The CHEM consultants have documented information about occupational health and safety situation and this research seeks to measure the workers knowledge, attitudes and perceptions on the same subject. The outcome of this research can lay a foundation for the development of the health and safety philosophy at the Turfloop Campus, University of Limpopo which will be congruent to the philosophy of the health and safety practitioners.

CHAPTER 4

4. RESEARCH METHODOLOGY

This is a quantitative study which addresses knowledge, attitudes and perceptions of employee within the Technical Division, Turfloop Campus of the University of Limpopo.

4.1 Study population

The scope of the study was limited to the staff of the Technical Division, Turfloop Campus of the University of Limpopo. Non-permanent employees that do contractor work were included in this study as they form part of the workforce within the University. The cleaners employed by Isikhonyane cleaning company, represented the contract workers within the Turfloop Campus.

The workforce within the Technical Division is made up of 34.9 % permanent and 65.1 % non-permanent employees. Some of the services are rendered by private companies such as Isikonyane Cleaning Company that renders cleaning services for the University. These private companies should be responsible for the health and safety of their employees. Occupational health and safety are a requirement by the Occupational Health and Safety Act (Act 85 0f 1993) and this includes the contractors as well.

4.2 Study Design

This is a cross-sectional descriptive study. The researcher has used a sample of the study population to investigate and gather information on the knowledge, attitude and perceptions concerning occupational health and safety among workers in the Technical Division of the Turfloop Campus. This study has made the researcher understand the present situation regarding occupational health and safety.

4.3 Sampling

Since there is no similar study conducted on the population, it was impossible to estimate P. (Population proportion of employees who are aware of occupational health and safety). Therefore, P = 0.5 was used to calculate the overall sample size as this value yields a maximum n (n = Sample size) (Wayne and Daniel, 1978). The sample size for this study was calculated by using the following formula:

$$n = \frac{N \; Z^2_{\frac{\alpha}{2}} \; P(1-p)}{d^2 (N-1) + Z^2_{\frac{\alpha}{2}} \; P(1-P)}$$

$$n = \frac{(209) \; Z^2_{0.025} \; (0.5)(0.5)}{(0.1)^2 (208) + Z^2_{0.025} \; (0.5)(0.5)}$$

$$n = \frac{209 \; (1.96)(0.5 \times 0.5)}{(0.1)^2 (208) + (1.96)^2 (0.5 \times 0.5)}$$

n = 66

Where N (209) is the size of employees within the Technical Division of the Turfloop Campus.

P - is the population proportion for employees who are aware of occupational health and safety.
d - is half of the width of the 100 (1-α) % confidence interval for P.
$Z_{\frac{\alpha}{2}}$ is a value from a unit normal distribution such that the area greater than $Z_{\frac{\alpha}{2}}$ is $\frac{\alpha}{2}$ and α - is the level of significance.

The sample size 66 was allocated proportionally to the occupational groups according to their size which then makes the sampling to become proportionally stratified random sampling. For example, sampling of managers in the Technical Division.

$$n_I = \frac{N_I}{N} \times n = \frac{9}{209} \times 66 = 3$$

Where N is 209, the total number of employees in the Technical Division, Turfloop Campus – University of Limpopo.

The sample number for managers was 3.

n_i = the sample size for the i^{th} occupational group.
N_i = the population size of the i^{th} occupational group.

Out of 9 managers only 3 were selected by the SPSS programme to participate in the study. During the period of data collection, one more manager voluntarily participated in the study. The number of managers who responded to the questionnaires became 4(four) n=4.

Light et al,1990 discussed site selection and stated that with only a limited number of sites, one would consider purposeful selection of a sample, rather than relying on idiosyncracies of chance. A random sampling of employees at all levels and in different categories of the Technical Division was done in order to accommodate all occupation groups. The human resource records were used to identify the population. A sample size which is more representative of the population for this study was determined by using the procedure in SPSS programme, in order to capture all occupational health hazards related to different occupation groups within the Technical Division in the Turfloop Campus (Maxwell,J A 1996).

Each category of workers was represented in this study as the occupational health hazards differ from one work area to the other. Within the Technical division of Turfloop Campus, a sample was drawn from different categories of workers to respond to a questionnaire, including:

clerks, plumbers, builders, drivers, electricians, carpenters, cleaners, managers, dump drivers, storemen, spray painters, welders, managers, administrators and labourers. For the purpose of this study, Technical staff members will be divided into four main categories. See table 4.1

Table 4.1 Categories of staff by position of work.

Occupational groupings	**Positions at work**
1. Administrative	Managers
	Admin officers
	Store men
	Supervisors
	Photocopier controllers
2. Technicians	Electricians
	Carpenters
	Spray painters
	Plumbers
	Builders/bricklayers
	Welders
3. Driver	Dump drivers
	Car drivers
4. Cleaners	Cleaners in different departments

The selection of participants was made to include all categories that have specific expertise, knowledge or occupational exposure (Maxwell,J.A 1996). As shown earlier, out of the 209, a sample of 66 staff members was selected to take part in the study.

4.4 Research tools

4.4.1 Questionnaire

A questionnaire (annexure 1) prepared for the workers was made up of 45 questions which covered the following aspects: demography, knowledge of workplace injuries, environmental hazards, physical hazards, ergonomic hazards and the general knowledge of occupational health and safety. The questionnaire was translated from English to North Sotho and Venda languages as requested by the participants.

A pilot survey was done to test the questionnaire among staff members working at the University guesthouse in Dalmada situated 25 kilometres South-West of the Turfloop Campus. They are employed by Sesonke Company, responsible for the cleanliness of the surroundings. Most of them knew that they are working with chemicals and dangerous machines but they could not mention the names of the chemicals they use on daily basis and did not know the effects of such chemicals on their bodies. They did not receive any pre-employment examination, orientation towards potential risks and the use of personal protective clothes as required by the Occupational Health and Safety Act.

4.4.2 Audit

Managers responded to 20 guiding questions on the check-list for the audit. The questions for managers were modified from the tool used by Labour Department inspectors during audits in different workplaces (adapted check-list of the Department of Labour). An assessment of occupational health and safety in different areas of the Technical Division was done together with managers/ supervisors (see appendix B).

The questions covered areas such as regulatory enforcement, current responsibilities for occupational health and safety management, description of operations. These aspects may have an impact on the knowledge, attitude and perception of workers regarding occupational health and safety. It is not only the elements of management system which can influence the research variables, but also how well expectations have been communicated throughout the organization, how well they are understood and the level to which they are actually implemented. Data collection also included aspects related to clear policies and expectations, commitment by senior managers, training and awareness and procedural guidance (Guild et al 2001).

4.5 Ethical and legal considerations

Permission to conduct research was sought and obtained from the Turfloop Campus Ethics Committee. Consent forms were signed by all selected participants. No names or any other

identifying information was requested by the questionnaire. This was done to ensure confidentiality and encourage honest responses. A questionnaire for managers and one for employees were submitted for approval by the Research Committee of the Turfloop Campus, University of Limpopo. Permission was granted to continue with the study. After a full explanation of the study, all participants signed consent forms (appendix c) before responding to the questionnaire.

4.6 Data collection

Meetings were arranged for different categories in the Technical Division for the purpose of distributing the questionnaire and to verbally translate each question into Northern Sotho and Venda which were the two languages best understood by participants. Those who could not write were assisted by the researcher and their colleagues to respond to all questions.

Out of sixty six (n = 66) participants, 62 (sixty two) responded to the questionnaire. 4 (four) of the selected participants did not attend meetings as arranged because they were either on vacation or sick leave. Participants were requested to recall how occupational health situation was since 2001 at the Technical Division, Turfloop Campus.

Data was entered into the SPSS Windows of version 11.0 package and the same package was used for analysis. Information gathered measured general knowledge, perception and attitude of occupational health and safety among the workers and managers of the Technical Division in the Turfloop Campus, University of Limpopo.

CHAPTER 5

5.1 RESULTS AND DISCUSSION

In this chapter findings of the study will be presented. Quantitative data regarding different occupational categories, their positions within the Technical Division, knowledge, perception and attitudes, will be presented including the following aspects:

- education and literacy level;
- different positions held by the Technical staff employees;
- knowledge of different injuries, hazards and safety inherent to their workplaces;
- perception of hazards safety and in the workplace;
- availability and the use of personal protective equipments or clothing (PPEs).

The findings of this study may not be generalised to other divisions, as each department within the Campus has different categories of workers with different level of knowledge, attitude and perceptions about occupational health and safety. Every department poses its own specific risks related to activities done in a specific area.

Table 5.1 Educational levels of respondents

Grades	Frequency	Percent
Grade 1 – 3	2	3.3
Grade 4 – 6	1	1.7
Grade 7 – 9	10	16.7
Grade 10 – 12	40	64.7
Further training	7	11.7
No response	2	3.2

The level of education of staff members within the Technical Division on Turfloop Campus vary from Grade one to further training for the type of work they do.

Table 5.2 Different departments represented by the sample

Division	Frequency	Percent
1. Technical	6	9. 7
2. Transport Section	5	8. 1
3. Office and facilities	2	3. 2
4. Stores	1	1. 6
5. Carpentry	4	6. 5
6. Electrical	1	1. 6
7. Assets Control	3	4. 8
8. Welding	2	3. 2
9. Cleaning	37	59. 7
10. Administration	1	1.6

Table 5.3 Turfloop Campus Technical Division staff by occupational categories.

Occupational categories	Frequency	Percent (%)
1. Managers	9	4.3
2. Clerical	20	9.6
3. Plumbing	3	1.4
4. Carpentry	9	4.3
5. Electrical	7	3.3
6. Building	7	3.3
7. Welding	3	1.4
8. Driving	15	7.2
9. Cleaners (Contract workers)	136	65.1
Total number of workers	**209**	**100.0**

In order to measure the knowledge of hazards inherent in different workplaces within the Technical Division of the Turfloop Campus, participants were required to respond to different questions regarding the following:

- existing and potential hazards within their work places;
- how those hazards can affect workers;

- dangerous positions commonly used and the health hazards expected from such positions;
- their attitude towards PPEs, availability and the use;
- Participants' perceptions.

Table 5.4 Perception safety of the environment.

	Response	Frequency	Percent (%)
Do you consider the environment you work in safe?	No	31	50.0
	Yes	30	48.4
	Don't know	1	1.6

30 participants (48.4%) believed that their work environment is safe, while 31 (50.0%) regarded their work environment as unsafe.

Table 5.5 Knowledge of potential hazards

	Response	Frequency	Percent (%)
Do you use anything at work that you consider potentially hazardous	No	28	45.2
	Yes	32	51.6
	Do not know	2	3.2

Table 5.6 What will make your environment safe ?

Safety measures mentioned	Frequency	Percent (%)
Protective clothing	3	4. 8
Well serviced machines	2	3. 2
No answer	43	69.4
Supervisor	1	1. 6
Knows how to use equipment	3	4.8
There is security	1	1. 6
Secured space	6	9. 6
Managers/ supervisors	1	1. 6
Do not feel safe	3	4. 8

Table 5.7 Potential hazards mentioned by participants

Hazards mentioned	Frequency	Percent (%)
Slippery floors	2	3.3
Dust	11	17.7
Cement	1	1.6
Scaffolds erected on dangerous zones	1	1.6
Noxious fumes from vehicles	3	4.8
Chemicals	5	8.1
Falling objects	1	1.6
Noise	3	4.8
Blocked toilets/showers	1	1.6
No response	31	50.0

50.0%of the participants said their work environment is not safe, but the same number of participants did not have the knowledge of the potential hazards found in their work environment.

Only 3.3% mentioned slippery floors as the potential hazard, 4.8% mentioned dangerous machines, 17.7% mentioned dust, 1.6% mentioned cement dust, 1.6% mentioned Scaffolds erected on dangerous zones, 4.8% mentioned noxious fumes from vehicles, 8.1% mentioned chemicals while 1.6% mentioned falling objects.

Staff members have the responsibility to work safely, taking reasonable care to protect their own health and safety and that of other workers

Table 5.8 General knowledge on occupational health and safety

Level of knowledge/ attitude among workers	Response	Frequency	Percent (%)
Training for the work you do?	no	14	23. 3
	yes	46	76. 7
Use PPEs ?	yes	52	85. 2
	no	9	14. 8
	No comment	1	1.6
Any health and safety committee	yes	8	12. 9
	no	53	85. 5
Any health & safety officer?	yes	5	8. 1
	no	56	90. 3
Is the environment you work in safe?	yes	30	48. 4
	no	31	50. 0
If your answer is yes, what makes you feel safe?	No comments	43	69. 4
	Knowing how to use equipment	3	4. 8
	Secure space	6	9. 6
	Protective clothes	3	4. 8
	Manager / supervisor	1	1. 6
	Well serviced machines	2	3. 2
	Do not feel safe	3	4. 8

5.2 The use of Personal Protective Equipment (PPE)

Personal protective equipment or PPE is designed to protect employees from serious workplace injuries or illnesses resulting from chemicals, radiological, physical, electrical, mechanical or other workplace hazards. 85.2 % of the employees in the technical Division perceived personal protective equipments as very much important and necessary for their own protection. 99% of all employees were aware that they should have personal protective equipments (PPEs) or clothing. One of the questions required employees to indicate the PPE's relevance for their work situation. In response to this question, 60% of the employees did not manage to list appropriate personal protective equipments necessary to protect them from health risks in

their workplace and they felt strongly that they do not have enough personal protective equipment, therefore, according to participants, the employer does not supply workers with enough personal protective equipments.

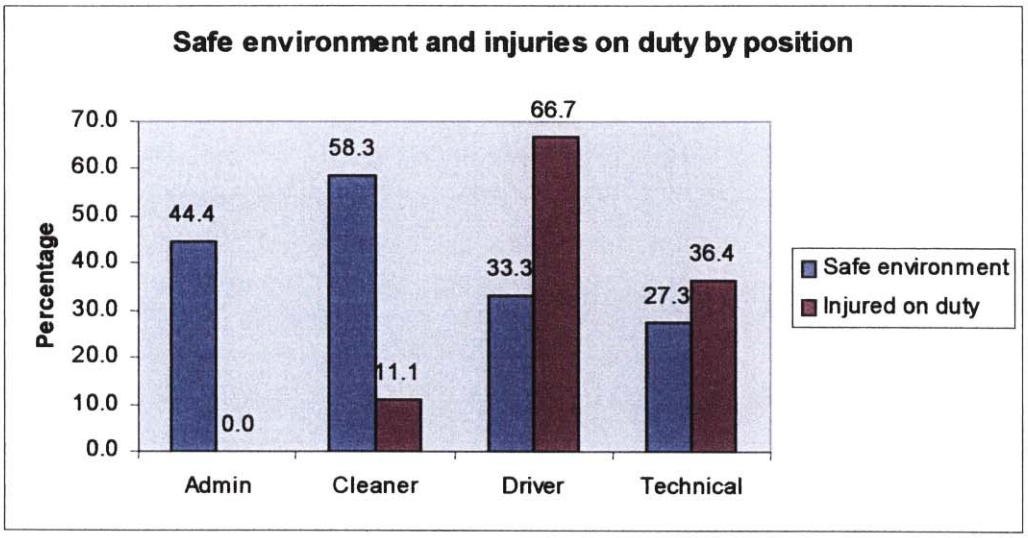
Knowledge of control measures among workers and managers in workplaces is necessary to prevent some of the occupational hazards/risks.

- Engineering controls involve physically changing a machine or work environment.
- Administrative controls involve changing how or when employees do their job, such as scheduling work and rotating employees to reduce exposures.
- Work practices involve training workers on how to perform tasks in ways that reduce their exposure to hazards.

The employer should, therefore, assess the workplace to determine if the hazards are present and if they require the use of PPE. If such hazards are present, the employer must select PPEs and require employees to use them, communicate the PPEs selection decision to the employees and select PPEs that properly fits the workers. Employers should train employees who are required to use PPEs on how to do the following:

- use PPEs properly;
- be aware of when to use PPEs;
- understand the limitation of PPEs in protecting employees from injury;
- don, adjust, wear and doff PPEs;
- maintain PPEs properly.

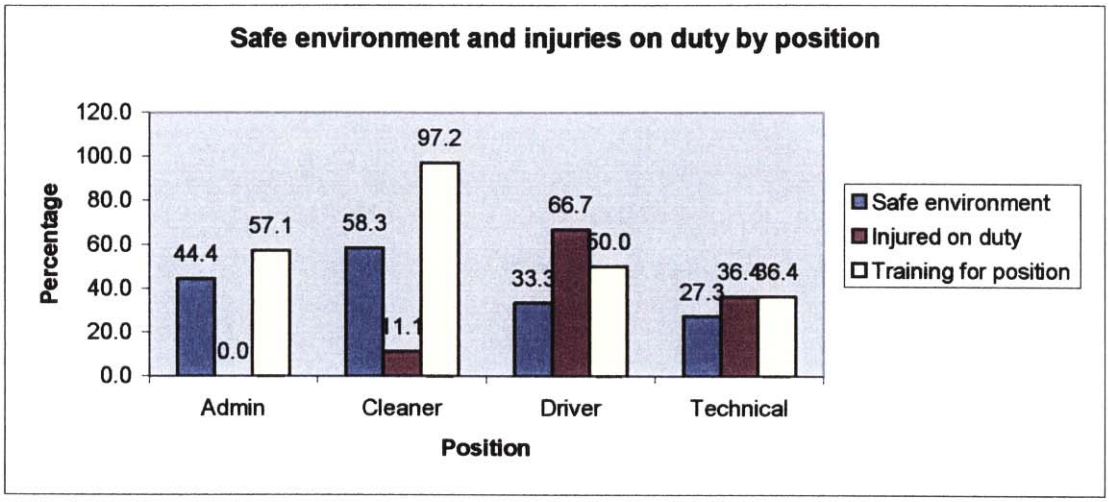
Figure 5.1 Knowledge of safety compared to injuries on duty among different categories of workers.



For the past two years, the prevalence of injuries in the Technical Division of the Turfloop Campus account for 11.1% among cleaners, 66.7% among drivers and 36.4% among technical staff (electricians, plumbers, carpenters, builders and those that are doing welding) and no injuries were reported by the administrative staff.

Drivers have the highest injury rate in the Technical division (66.7%), followed by Technical staff (36.4%) and cleaners with only (11.1%). Administrative staff reported no injuries on duty in the past two years. Administrative staff seems to have the safest working environment. No administrative staff member suffered ill-health related to their work. Most of the admin staff works with Visual Display Units (VDUs) and in this case computers are mostly used. Where problems occur, they are generally caused by the way in which Visual Display Units are used rather than the Visual Display Units themselves. Health problems can only be avoided by ensuring safe workplaces and job designs as well as by the way workers use their VDUs at their workstations.

Figure: 5.2 **Perception of a safety in the workplace and injuries on duty**



44.4 % of the administrative staff indicated that they work in a safe environment, 57.1% agreed that they were trained for the work they do while 97.2 % of the cleaners received training for the work they do. The knowledge received during training will certainly assist employees to know which PPEs to use and how best can they prevent injuries on duty. Knowledge regarding safety of the environment and injuries on duty can be gathered during training sessions. Workers have the right to know the hazards associated with their work and be fully instructed on safe work procedures.

Table 5.9 Safe working environment as perceived by workers

	Response	**Frequency**	**Percent (%)**
Do you consider the environment you work in safe?	No	31	50.0
	Yes	30	48.4

5.10 Knowledge of what employees should do when injured on duty

Do you know what you should do when you are injured on duty?	**Response**	**Frequency**	**Percent (%)**
	Yes	36	58.1
	No	24	38.7
	No answer	2	3.2
	Total	62	

38.7 % of the participants do not know what they should do when they are injured on duty. 58.1% said they know what to do when they are injured on duty.

Figure 5.3 Knowledge of where employees should go when injured on duty

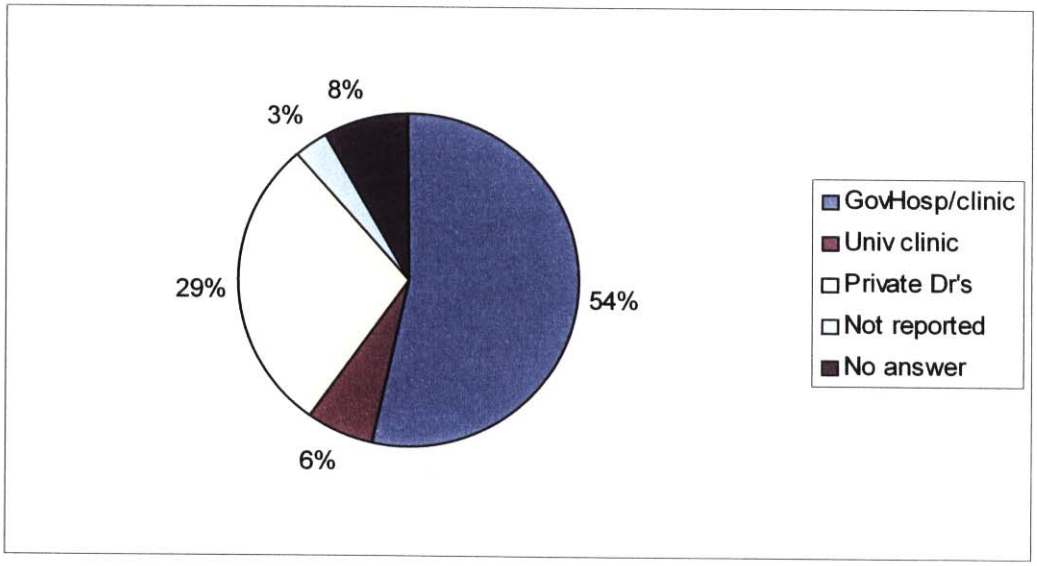


Figure 5.4 indicates that 54% of the Technical Division workers get assistance from the nearby government hospital when they are sick or injured on duty, 29 % afford to go to private doctors, 8 % did not respond to this question, 6% use the University clinic, 3% did not report any where when they got injured.

Table 5.11 Safety measures as perceived by workers

Safety measures mentioned	Frequency	Percent %
Protective clothing	3	4. 8
Well serviced machines	2	3. 2
No comment / no answer	43	69.4
Supervisor	1	1. 6
Knowing how to use equipment	3	4.8
There is security	1	1. 6
Secured place	9	13.6

69.4% did not know what safety measures can prevent hazards in their workplace.

5.3 Audit Results

The audit findings can only drive the process of continuous improvement providing that a systematic approach is implemented and that the findings are utilized to improve the management system and technical programmes as opposed to fault finding.

In the discussions held with supervisors and managers within the Technical Division at the University of Limpopo (formerly UNIN), it became evident that information, education and communication about safety, health and environment equipped them with a better understanding of this field than the rest of the employees who have not received training or have no information about occupational health and safety.

Table 5.12 The Occupational Health and Safety Act

Do you have a copy of Occupational Health and Safety Act (Act no. 85 of 1993)	**Frequency**	**Percent (%)**
Yes	2	50.0
No	2	50.0

The Occupational Health and Safety Act (Act 85 0f 1993) is a requirement in every workplace. 50% of the managers had a copy of the Act while 50% did not have a copy and 75% said the workers do have access to the copy.

Managers did not know of any disaster plan for the Technical Division. Their fire extinguishers were out dated and not ready for use. Workers were not trained to use the fire extinguishers.

They agreed that in some areas there are bare electrical wires and some plugs are uncovered. All injuries are reported to the University management and to the Labour Department. The Technical Division has clean and hygienic toilets, as well as washing facilities and change rooms for male and female workers. Some areas within the Technical Division are not clearly marked with relevant colours.

Table 5.13 Health and safety training

Did you receive any training on Occupational Health and safety	**Frequency**	**Percent (%)**
Yes	3	75.0
No	1	25.0

75% of the managers /supervisors received training on occupational health and safety. They also have fully equipped first Aid boxes but none of them was trained on First Aid. All

Table 5.14 Recommendations by all participants

Recommendations	Frequency	Percent%
Safety at work	1	1.6
Control of pollutions	1	1.6
Training on safety	6	9.7
Health and safety committee	2	3.2
Personal Protective Equipment /Clothing	14	22.6
Health and safety office	2	3.2
Compensation for injuries	1	1.6
Safety officer	3	4.8
No comments	32	51.6

About fifty two percent (51.6 %) which is a larger number of participants did not give recommendations as requested. 22.6 % recommended personal protective equipment while 9.7 recommended training for occupational health and safety. Two percent (1.6 %) recommended control of pollutions in the workplace and the same percentage recommended safety at work and compensation for injuries. About three percent (3.2%) recommended the establishment of health and safety committee while the same percentage said there should be a health and safety office.

CHAPTER 6

6.1 CONCLUSION AND RECOMMENDATIONS

The knowledge, positive attitude and perception of employees can be promoted by legislation, health and safety policy, elected health and safety representatives as well as health and safety committees. Knowledge will influence active employee participation in occupational health and safety. In this study, the educational level of participants did not seem to have any influence on the knowledge, attitude and perception of occupational health and safety. Participants displayed a low level of knowledge regarding occupational health and safety regardless of their level of education. Figure 5.1 indicate that 33% of the drivers perceive their work environment as safe while their rate of injury on duty is 66.7%. Data also show that the workers in the Technical Division have no knowledge regarding the relation between exposure to the hazards in their workplace and the consequent health damage.

Figure 5.2 shows that administrative staff never had injuries on duty or illness caused by the work environment in the past two years yet, there are known health problems which can develop due to their office environment and the use of Visual display Units (VDU's). Therefore, it is clear that the training received by 57.1% of the administrative staff may only be related to their job description with no inclusion of occupational health and safety related to their work environment. This is reflected by their lack of knowledge regarding occupational hazards related to their workplace.

Table 5.8 reflect that 58.1% of the participants know what to do when there is an injury on duty and figure 5.3 show different places used by workers in case of injury or ill-health. In pursuit of quality or compliance regarding occupational health and safety, the University of Limpopo should recognize the significance of integrating health and safety in training programmes for the workers.

The main aim should be to improve knowledge and information about hazards in the workplace and ensure adequate instruction, training and supervision of workers regarding occupational health and safety.

Some institutions of higher learning such as Flinders University recognises the significance of integrating health and safety into all organizational activities (Flinders University: Administrative Policies and Procedures-Health and Safety, 2004). The University has established an occupational Health and Safety Unit to provide consultancy service to the University community and to oversee the implementation of the University's health, safety and welfare management plan. The main aims for the unit are:

- to prevent injuries to and illness of University staff, students and visitors and to minimize property damage due to accidents in the workplace;
- to fully integrate health and safety with all other operational functions of the University so that all staff, students and visitors are working with:

(i) a safe environment;

(ii) safe systems of work;

(iii) plant and substances in a safe condition;

(iv) appropriate knowledge and information about hazards in their work area;

(v) and adequate instruction, training and supervision;

(vi) adequate facilities including access to medical , health and first-aid services;

(vii) an effective means of consultation and communication on health and safety issues;

(viii) an effective system for monitoring their health, welfare and their working conditions;

(ix) an effective mechanism for reporting, recording and investigation of hazards identified and /or work-related illness and injury;

(x) an effective rehabilitation strategy providing full support to those whose health has been affected by their work activities.

- To ensure students and staff leaving the University take with them an attitude that accepts good health and safety practice as normal (Flinders University: Administrative Policies and Procedures- Health and Safety, 2004)(http://www.ccohs.ca/oshanswers/hsprograms/basic.html15/11/2005).

There are several ways of motivating employees in the institution to participate in the health and safety programme. If the majority of the workers in the institution belong to a registered Trade Union, the employer should negotiate with that Trade Union on a collective agreement to negotiate employee participation. For as long as the number of employees can exceed twenty (20), they have the right to elect a health and safety representative. There should be a health and safety representative for every 100 employees in the case of the shops and offices. The functions of the health and safety representatives are clearly stipulated in section 18 and those of the health and safety committee in section 20 of OHSA (Guild, et al 2001).

Some institutions of higher learning have Occupational health clinics used by employees when they are injured or sick. In the Technical Division of the Turfloop Campus, 54 % of the participants use the nearby Government Hospitals when injured on duty or sick. 29 % of them consult private doctors, 6 % go to the University Student Health Centre where they are further referred to the Government Hospital, 8 % did not respond to the question while 3 % of the sample did not report their injuries or illnesses to anyone at work.

Eighty eight point nine percent (88.9 %) of the drivers, 22.2 % of administrative staff, 45.5% of Technical staff and 8.3 % of the cleaners have medical Aid schemes which can assist them to consult private doctors. The remaining staff members do not use any medical aid scheme.

Time spent for medical consultation and sick leave days given to employees is time lost for productivity at work.

The Turfloop Campus Student Health Centre/clinic is meant for students only and the professional nurses, who may not complete any injury-on-duty forms, are the ones who provide services, hence all the workers are referred to the Government hospital.

It is clear that there is a need for the Turfloop Campus to develop policies and procedures to be followed when employees are injured on duty. The administrative processes regarding compensation for injuries on duty and sick leave are presently handled by individual departments and faculties on Campus. The human resource office on campus does not have a central administrative section where records for all injuries and compensations are kept.

Health services for employees within the University are non-existent. The external health service providers are utilised for all injuries on duty and ill-health for the University employees. Most public health sectors / hospitals act as a conduit for the referral of workers injured at work to be seen by private practitioners. Doctors at these hospitals are contracted to the Compensation Fund through the Provincial Hospital Services. Injured workers presenting at public hospitals are usually transferred to the private hospitals for further care, especially where there is lack of capacity to deal with compensation claims.

Table 5.8 shows that 38.7% of the participants did not have knowledge of what they should do when they are injured on duty while 3.2 % did not respond to the question. 58.1% said they know what they should do when they are injured on duty while figure 5.3 reflects different places used by employees for either injuries on duty or ill-health within the same division.

Section (1) of the OHSA, says there should be a written policy concerning protection regarding the health and safety of employees at work, including a description of the organisation and arrangement for carrying out and reviewing that policy. An employer shall prominently display a copy of the policy referred to in subsection (1) signed by the chief executive officer, in the

workplace where his employees normally report for service (OHSA). The policy on Health and Safety can give direction to the Occupational Health and Safety management in any given workplace.

Fourty five percent (45.2%) of the participants did not know if there is anything they use at work which is potentially hazardous. 51.6% knew that there is something they use which is potentially hazardous. 3.2% did not know whether their work environment has potential hazards or not. Potential hazards mentioned by the participants include: Slippery floors, dust, cement dust, scaffolds erected on dangerous zones, noxious fumes from vehicles, chemicals, falling objects, noise, blocked toilets/ showers. 50.0 % could not list any potential hazard. This is an indication of low levels of knowledge regarding the potential hazards among the Technical Division staff members.

While potential hazards can be identified in a given workplace, it does not necessarily follow that these hazards will be present in the same given work area. If these hazards exist, they may not be significant. It is therefore, necessary to rely on some form of observation or measurements over a period of time to verify if the hazards do really exist. In some situations, it becomes easy to identify hazards as they are clearly discernible by sight, smell, hearing or touch. The anticipation of hazards requires knowledge of harmful effects of substances and the disorders that are attributable to a specific occupational process. Knowledge of the former is gained from Toxicology whilst that of the latter is acquired from Epidemiology. Both studies are useful in understanding occupational exposure limits (OELs) of hazards.

Hazards can be present in the work place but they may not be identified until a number of workers in specific occupations develop illness or disability. "The probability that a worker is exposed to a hazard and the consequence of such exposure is assessed according to the table shown below" (Guild et. al,. 2001).

Figure 6.1 Risk rating model

Probability category	Definition
5	Possibility of repeated incidents
4	Isolated incidents known to have occurred.
3	Possibility of occurring sometimes.
2	Unlikely to occur
1	Practically impossible
Consequence categories	Definition
4	Serious long or short term effects
3	Serious adverse health effects that would require off-site medical treatment
2	Non life threatening health effects that may require on-site first aid treatment.
1	Little if any adverse health effects

Table 5.11 shows that 69.4 % of the participants did not have knowledge of what could make their work environment safe. Two percent (1. 6%) of them believed that the supervisor is the one who can make the environment safe for the workers. About five percent (5%) believed that protective clothing will make the work environment safe, while 4.8% felt that knowing how to use the equipment will ensure that the work environment is safe. About ten percent (9.6 %) of the participants felt that a secured place will make the work environment safe while two percent (1.6 %) believed that there is security. Among those who said their environment is not safe, 4.8 % believed that safety is only measured by the use of protective clothing,

while 3.2 % believed that well serviced machines will determine the safety of their work environment.

Analysis of the three responses given by participants as reasons to believe that the workplace is safe namely: there is security, secured place and supervisor, one could associate them with lower levels of knowledge regarding occupational health and safety among employees. Supervisors who are perceived as the ones responsible for health and safety, the fact that there is security and that the workplace is secured does not in any way protect the workers from potential hazards.

Approximately eighty four percent (83.9%) of the participants knew that they need personal protective equipments (PPE) or clothing for the work they do. The Occupational Health and Safety Act (Act no. 85 of 1993) states that "where Personal Protective Equipment is issued, the employer remains under a continuing obligation to take collective measures as and when they become reasonably practicable". Where employees are exposed to risks, employers must institute a programme to monitor the risk. There were complaints from different workers about the availability of PPE while they are not clear about the type of hazards and risks inherent in their workplaces. This reflects lack of knowledge and the understanding about PPE as stipulated in the Occupational Health and Safety Act (Act 85 of 1983).

The use of PPE is often essential, but it is generally the last line of defense after engineering, workplace practices and administrative controls. Participants were knowledgeable about the need to use personal protective equipment but believed that the available PPEs are not enough.

Health and Safety problems can be reduced by introducing effective Occupational Health programmes, which might increase the knowledge about Occupational Health and Safety Act (Act 85 of 1993). The risks should always be linked to medical surveillance where possible. Monitoring may be done by conducting occupational hygiene measurements or establishing systems of medical surveillance" (Guild, et. al., 2001).

Drivers did not complain of any dust although they mentioned frequent use of road unworthy vehicles, including those cars that allow dust inside as some times dusty road are used. This may indicate that the drivers do know most of the hazards inherent in their workplace.

Among the 8.1 % of the participants who mentioned chemicals as hazards, they did not know how those chemicals will affect their bodies.

Carpenters build or repair various structures. They work primarily on wood and some of their main duties are to: measure, cut, shape assemble and join material. They sometime have to read, prepare and interpret blue print and drawings. They also make use of various equipments, clean such equipment, maintain and conform to building codes and legislations.

In this study, carpenters identified wood dust as their main problem while brick layers were worried about cement dust.

The following are unique occupational hazards for a carpenter and their preventive measures, according to the Canadian Centre for occupational health and safety:

- use of various machinery and tools;
- moulds, fungi and bacteria;
- chemicals, solvents and other materials which can cause dermatitis and respiratory problems;
- cancer risk from wood dust;
- flammable or combustible materials, including wood dust;
- risk of pain or injury from working in awkward positions, repetitive tasks or lifting;
- extreme temperatures when working outdoors;
- risk of eye injury from flying particles;
- working at heights;
- stress;
- Shift work or extended work days.

Most of these occupational hazards were not mentioned by the carpenters in the Technical Division. The importance of educational programmes should not be overlooked. No worker can

- good ventilation;
- keeping tools and equipment in good working order;
- cleaning up wood dust regularly;
- wearing appropriate eye protection, foot wear and other personal protective equipment for the task;
- keeping work areas clear of clutter and equipment;
- learning safe lifting techniques;
- avoiding awkward postures or repetitive tasks;
- Following recommended shift work patterns and knowing the workplace hazards.

There should be company safety codes of practice which must be followed by all workers including safe lifting techniques, use, maintenance and storage of personal protective equipment according to the recommendations of manufacturers (www.ccohs.ca/oshanswers/cccup-workplace/carpenter.html15/11/2005 .

Out of all the categories in the Technical Division, the cleaners are the ones who received training in large numbers (97.2 %) for the kind of work they do and 58 % of them believe they work in a safe environment. Eighty percent (86%) of the cleaners did not respond to the question which required them to say if they were supplied with personal protective clothing. Their injury rate is 11.1% in the past two years. 63 % did not respond when required to list the hazards inherent in their work environment as they might not have adequate knowledge about them. 93% agreed that they work with dangerous chemicals as they were to choose among other listed hazards. It became evident that occupational health and safety was not touched during their training.

During the cleaning process, the floors are often wet and slippery and cleaners may slip, trip and fall. They extensively use cleaning, rinsing and other chemicals which may cause irritation and other problems to their eyes, nose, throat and skin.

The cleaner's work is often done in uncomfortable postures. It also involves handling of heavy loads. The cleaners activities include continuous repetitive movements (e.g. scrubbing) which

During the cleaning process, the floors are often wet and slippery and cleaners may slip, trip and fall. They extensively use cleaning, rinsing and other chemicals which may cause irritation and other problems to their eyes, nose, throat and skin.

The cleaner's work is often done in uncomfortable postures. It also involves handling of heavy loads. The cleaners activities include continuous repetitive movements (e.g. scrubbing) which involve both arms. All these may lead to serious problems of arms, the back and hands etc. Most of these hazards were not mentioned by cleaners in this study.

According to the International Labour Organization 2000, the cleaners should follow specific preventive measures to prevent hazards such as:

- Wearing of safety shoes with non skid soles;
- Do not handle or touch hot articles or surfaces with bare hands, wear heat protective gloves;
- Wear respirator if working in a dusty area;
- Protect hands with chemical- resistant gloves; if impractical use a barrier cream;
- Receive instructions on how to handle chemicals such as hydrochloric acid and what to do if spillage occurs;
- Select a shift work scheduled to have least harmful effects on the employee's health and family
- Classify waste and know how to handle or dispose such wastes.

There are no occupational exposure limits (OELs) for skin problems which may occur among cleaners. Most material safety data refer to respiratory or oral exposure limits. This makes compliance monitoring difficult. A single exposure limits are applied to skin contact exposure, which may be inappropriate. The palms, soles and fore arms are less permeable than the face

6.2 Audit done with managers /supervisors

Managers are often perceived as employers in workplaces. There are general duties of the employers to their employees according to OHSA. Managers are taken as part of management in most employment areas.

Seventy five (75%) of the managers who participated in the study received training on occupational health and safety while 25% did not receive training. Hence their level of knowledge is higher than other staff members. OHSA is still regarded as the source of information about occupational Health and Safety by the Department of Labour and should be available for all the workers to read.

Employees perceive occupational health and safety as the responsibility of the employer. There is lack of knowledge about what the OHSA says regarding employees responsibilities. Participants did not receive any form of training regarding health and safety and they are not aware of different risks inherent in their workplace. Any health and safety system can be successful if the employees inform their supervisors about health and safety risk and therefore, employees should know what poses a risk to them.

The idea that occupational health and safety is the responsibility of employers at the workplace was more prevalent. This reflects a form of dependency and shifting of the responsibility, perhaps because of lack knowledge about what the Occupational Health and Safety Act (Act 85 of 1993) expect from workers. The Act stipulates that "every employer with 20 or more persons in his or her employment shall have a copy of the Act and the relevant regulations available at the workplace. Where the total number of employees is fewer than 20, the employer shall on request of an employee make a copy of the Act available to that employee" (OHSA).

Participants also believed that they should be compensated for any injury that occurs regardless of the cause of the incident. Of the 62 participants, none of them mentioned that incident analysis was done after injuries.

Participants also believed that they should be compensated for any injury that occurs regardless of the cause of the incident. Of the 62 participants, none of them mentioned that incident analysis was done after injuries.

Managers reflected a high level of knowledge, positive attitude and perception towards occupational health and safety than the other employees. This could be attributed to the training workshops conducted for the managers on Campus while the rest of the employees did not receive any form of training or general information regarding occupational health and safety. The following documents should be kept by managers at the workplace:

- Turfloop Campus Occupational Health Policy;
- Occupational Health and Safety Act (Act no.85 of 1993);
- Posters or leaflets and any form of communication material on occupational health and safety.

Occupational Health and Safety Act should be the source of information in all workplaces. It is one of the reliable sources of knowledge regarding health and safety information which further modifies the perceptions and attitudes of the workers.

The policy documents inform all employees within the institution of the relevant information and acceptable procedures pertaining to a specific issue within the institution. Therefore, it should not merely contain a mission statement committing the organisation to managing health and safety effectively. In order to improve knowledge of workers with regard to occupational health, the company should ensure delivery of successful occupational health management systems. The organization should support the general declaration with more detailed policy statements together with goals, objectives and targets to translate the policy into actions. An effective policy should be established by top management in consultation with employees (Guild, et al 2001).

By October 2004 (the period when data was collected), the Technical Division staff did not know any existence of the health and safety representatives or the health and safety committees in all the units of the Technical Division.

The existing health and safety representatives were said to be in the Safety and Security section, although the staff members involved are overburdened by other responsibilities. These officials received training on health and safety in 1997 conducted by National Occupational Safety Association (NOSA) and they became responsible for health and safety within the Turfloop Campus. The same officials are responsible for First Aid. They also render ambulance services in case a worker or a student gets injured in or outside the University premises. An ambulance is kept at the Safety and Security Division and it has to operate for 24 hours daily on campus. They also managed to do few disaster drills in past years.

The employer should ensure that the environment is safe and without risk to the health of the workers. To ensure that the environment is safe, the employer must provide and maintain all the equipments necessary to do the work and all systems according to which work must be done in a condition that will not affect the health and safety of the workers. Before personal protective equipment may be used, the employer must first try to remove or reduce any danger for the health and safety of the workers. "Only when this is not practicable, should personal protective equipment be used" (Department of Labour booklet).

6.3 CONCLUSION

From this study it can be concluded that the Technical Division workers have a positive attitude and perception towards occupational health and safety. Although they have less knowledge regarding the personal protective equipments which are suitable for their work places, they believe that the correct personal protective equipments should be provided by the employer. Most workers were not aware of the hazards inherent in their work places.

A negative relation was found to exist between the workers and the supervisors as the workers regard occupational health as the responsibility of the supervisors or the employer.

According to participants, injuries on duty should be compensated regardless of the cause of the incident. Participants did not have access to Occupational Health and Safety Act (Act no. 85 of 1993) and the larger percent of them did not receive any training on occupational health and safety. They do not know of any safety committee in their division and they do not have safety representatives. The existence of the health and safety committee and representatives in the workplace ensure workers involvement in occupational health and safety. This form of participation by employees in occupational health and safety activities can increase the level of knowledge about the subject matter.

6.4 RECOMMENDATIONS

Given the opportunity to outline recommendations for occupational health and safety in the Technical Division of Turfloop Campus, participants mentioned the following:

Safety at work;

Control of pollutions;

Compensation for injuries,

Health and safety committee,

Health and safety office,

Safety officer,

Training on safety,

Protective clothing

About fifty two percent (51.6%) of the participants did not know what to recommend. Recommendations reflected most of the requirements by the Occupational Health and Safety Act (Act no. 85 of 1993). The level of knowledge regarding occupational health and safety

among the Technical staff members should be increased to the level where they will be motivated to participate in health and safety programmes.

It is the duty of the employer to ensure that the workplace is free of hazardous substances that may cause injury, damage or diseases. Where this is not possible, the employer must inform workers of these dangers, how they may be prevented and how to work safely. To ensure that these duties are complied with, the employer, who in this case is the University of Limpopo, Turfloop Campus must:

- Identify potential hazards and communicate them to the workers;
- Establish precautionary measures that are necessary to protect workers against the identified hazards and provide means to implement these measures;
- Provide the necessary information, instruction, training and supervision while keeping the extent of competency in mind;
- Not to permit anyone to carry on with any task unless the necessary precautionary measures have been taken;
- Ensure that every worker translates knowledge of occupational health and safety into practice and comply with the requirements of the OHSA;
- Enforce the necessary control measures in the interest of health and safety (OHSA).

According to the Canadian's National Occupational Health and Safety Resource, employee orientation is important to ensure the success of occupational health and safety programmes. Employee education should start with orientation when the employee joins the organization or is transferred to a new job. While experience can only be gained through time, both health and safety education and job skills training can be used to improve this record. During orientation, the following items which are related to occupational health and safety should be included:

- Emergency procedures;
- Location of first aid stations;
- Health and safety responsibilities, including those specified by legislation;
- reporting injuries, unsafe conditions and acts;
- Use of personal protective equipments;
- Rights to refuse hazardous work;
- Hazards, including those outside own work area;
- Reasons for each health and safety rule.

A new employee can be expected to absorb only a certain amount of information in the first few days. A brochure outlining the points covered in the orientation sessions is useful as a handout to employees. It will also serve as check list for the person conducting the orientation. A buddy system is a useful follow up to the initial orientation. This allows for on the job reinforcement of the information presented to the new employee. This process promotes the safety awareness of the experienced workers who are the "buddies" and involvement of employees in health and safety programmes.

Once the health and safety programme has been set in place and the programme appears to be running smoothly, effort is still required to maintain enthusiasm and interest among the workers. Studies have shown that the effectiveness of health and safety educational techniques depends largely on how much importance management is seen to place on health and safety. Safety awareness can be enhanced by:

- the setting of realistic goals and monitoring of progress;
- distribution of all pertinent information;

the "walking wounded" syndrome. Therefore there should be strict control of incentive programmes to avoid this from happening;

- senior management must demonstrate commitment and support the programme by:
    - Providing resources such as time, money and personnel;
    - Communicating the programme to all employees;
    - Ensuring that employees receives training or certification as required;
    - Ensuring that health and safety information is available to all employees entitled to receive it;
    - Health and safety performance should be part of the employees performance appraisal at all levels;
    - Attending the health and safety meetings.
    - The programme should be evaluated by audits annually although reviewing critical elements of the programme can be done frequently (Canadian Centre for occupational health and safety, 2004: http://www.ccohs.ca/oshanswers/hsprograms/basic.html16/11/2005

Appendix 1: contacts for Data CD- ROM and other related material

There are several CD-ROM databases which can be useful for both managers and workers.

- EQS_INFORMATION MANAGEMENT SOFTWARE – this consist of three core components, together with the management facility, which manages common information. An integrated management system designed to facilitate and promote management systems compliance to ISO 9000, ISO 14000 and OHSAS 18000.

Supplier: Granhrne Information Systems Ltd.

Chester House, 78-86 Chertsey Road, Woking, Surrey GU21 5BJ.
Tel: +44 148 3729661
Fax: +44 171 7248627,
email: ashar@granherne.co.uk

- SHE6 - SAFETY HEALTHAND ENVIRONMENT MANAGEMENT SOLUTIONS – This is an extensive database analysis with full management graphics covering risk assessments, incidents/accident reporting and audit functions.

Supplier: Lexware International Ltd.

Brunel Building, Scottish Enterprise Technology Park, East Kilbride G75 0QD
Tel: +44 1355272444
Fax: +44 135 5272445
Email: mail@lexware.co.uk

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APENDIX A

QUESTIONNAIRE ON OCCUPATIONAL HEALTH AND SAFETY

Please answer the questions below as honestly as possible, by marking/giving the answer that applies to you most. Your response will be handled in confidence and anonymously.

SECTION A

Complete the following section :

1. Department / Section	
2. Position	
3. Type of work	
4. Race	
5. When did you join the University	
6. Gender	
7. Level of education	
8. Age	

SECTION B : INJURIES

Indicate with a cross (**X**) where you think that the answer is right.

You can use a pencil or a pen.

	YES	NO
Example : if your answer is Yes ⟶	X	
Example : if your answer is No ⟶		X
1. Have you ever been injured on duty?		
2. If your answer in number 1, is **YES**, briefly answer the following questions: Explain what happened in the space below :		
3. Was anything done about your injury on duty?		
4. If your answer in number 3 is **YES,** explain what was done (use the space below.)		
5. Did you report to the employer / supervisor?		

6 Were you supposed to have put on the protective equipment or clothing ?		
7. Did you have protective equipment or clothing on, when you got injured ?		
8. Did you require medical attention?		
9. Do you know what you should do when you are injured at work.?		
10. If your answer in 9 is **yes**, what was the incident. (What happened) Explain.		
11. Dou you know anyone who was compensated for an injury in your division due to injury on duty ?		
12. Do you or your co-workers complete forms after any injury.		
14 Do you have any medical scheme?		
15 In case of injury, do you get any assistance or medical care?		
16. Where do you get medical care or assistance. Choose below.		
Government Hospital		
Univesity Clinic		
Private Doctor's surgery		
Government hospital /clinic		
Keep quiet		
17. If you are injured or sick, how do you go to the Health service facility? eg Hospital, clinic or surgery ? Choose from the list below.		
Ambulance?		
walk?		
Look for your own transport?		
Colleagues arrange transport for you.?		
Employer arrange transport for you?		

	YES	NO
18. Do you have health and safety officer in the Technical division?		
19. Do you have a health and safety committee?		

SECTION C : ENVIRONMENTAL HAZARDS

20. Do you consider the environment you work in safe ?		

21. If your answer in number 20, is "**NO**", what could be the problem ? Explain below.

22. If your answer in 20, is **YES**, what makes you feel safe at work? (Explain below)

23. Do you use anything at work that you consider potentially hazardous to your health ?		

24. If your answer in number 23, is "**YES**", list those hazards below :

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25. How can each of those hazards harm your body ?

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SECTION D : PHYSICAL HAZARDS

26. Do you think your work station present with any physical danger? If your answer is YES, Choose the ones that apply to your workplace, from the list below:		
falls		
slippery floor		
dust		
falling objects		
bright light		

noise		
micro organisms (bacteria or virus)		
unsuitable chair		
Cold		
exposed electrical wires		
faulty equipment / machine		
noisy machine		
Asbestos		
machinery		
Coal dust		
blocked drain with dirty water flowing on the surface		
dangerous chemicals / substances		
Fumes		
Explosives and flammable gases or chemicals		
Vapour		
paint		
other (write the names below)		
SECTION E : ERGONOMIC HAZARDS		
27. Did you receive training for the work you do?		
28. Do you use any personal protective equipment or clothing?		
29. If your answer in number 28 is "**YES**". which ones do you use? Choose form the list below .		
Eye Gorggle		
Boots		
Hand Gloves		
Ear muffs		
Apron		
Work suit		
Mask		
Hat		
Others (List them)		

	YES	NO
30. Do you use a position or posture that causes pain or discomfort when you perform your job? If your answer is **YES**, which position is that?		
31. If your answer in number 30, is "**NO**", which position is suitable for your job : Sitting on the chair		
Standing		
Bending		
Walking		
Others (name the position)		
32. Did you request sick leave between last year and this year ?		
33. If your answer in number 32 is **YES**, how many days did you have?		
34. Was your health problem work related ?		

MARK WITH A CROSS (X) ON THE RELEVANT SPACE IF YOU AGREE **OR** DISAGREE **WITH THE STATEMENT**

	Agree	**Disagree.**
35. It is cheaper to prevent the disease or injury before it occurs		
36. Workers should be trained for the work they do to avoid unnecessary injuries on duty.		
37. People need accurate health information and education about the following : (choose from the list below)		
Risks involved for the work they do		
Safety measures at their work stations		
Ergonomics (the relationship between the worker and the job he / she does)		
Protective clothing (gloves, eye wear , ear protection, foot wear, work suits etc.)		
Different kinds of hazards		
Different kinds of pollution		
Fire extinguishers and how they are used		
First aid		
Risks prevention		

Recommendations :

Thank you very much.

Apendix B

UNIVERSITY OF THE NORTH
OCCUPATIONAL HEALTH AND SAFETY

(AUDIT GUIDE TO BE COMPLETED WITH THE ASSISTANCE OF MANAGERS / SUPERVISOR)
Indicate your choice with a cross (X) under **YES** or **NO**

QUESTIONS	YES	NO
1. Are you registered with the Department of Labour with regard to the Compensation for Occupational Injuries and Diseases Act (Act 130 of 1993) (COID)?		
2. Are you registered with the Department of Labour with regards the to Unemployment Insurance Act (UIF)?		
3. Do you have a copy of the Occupational Health and Safety Act (Act 85 of 1993) (OHSA) in your section?		
4. Is the OHSA available for the workers?		
5. Have you established Health and Safety Committees in the workplace?		
6. Have you received training on Health and Safety?		
7. Do you have fully-equipped first aid boxes on the premises?		
8. Do you report injuries on duty to the UNIN management?		
9. Do you report injuries on duty to the Labour Department?		
10. Do you have clean and hygienic toilets?		
11. Do you provide bathing facilities and change rooms for men and women?		
12. Do you have an attendance register to be completed by the workers?		
13. Is your work area well marked and demarcated with relevant colours? eg. (green/white , yellow/black , red /white)		
14. Are there bare wires and uncovered plugs in the work place?		
15. Do you practice effective safekeeping of your tools and equipment?		
16. Do you have fire extinguishers, which are in good working order and ready for use?		
17. Do you ensure that the workers use personal protective equipment?		
18. Do you have a disaster plan in the department?		
19. Do you know of any disaster plan for the University?		
20. Did the workers report injuries on duty since last year?		

Comments :

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Thank you.

Apendix C

UNIVERSITY OF THE NORTH
ETHICS COMMITTEE

PROJECT TITLE: **KNOWLEDGE, ATTITUDE AND PERCEPTION OF OCCUPATIONAL HEALTH AND SAFETY AMONG THE TECHNICAL STAFF WITHIN THE UNIVERSITY OF THE NORTH.**

PROJECT LEADER : **DR MBL MPOLOKENG**

CONSENT FORM

I, ---------- hereby voluntarily consent to participate in this project .

I realise that :

1. The study is meant to look at the knowledge, perception and attitude of Occupational Health and Safety among the Technical Staff members within the University of the North.

2. The procedure envisaged may hold some risks for me that cannot be foreseen at this stage.

3. The Ethics Committee has approved that individuals may be approached to participate in the study.

4. The experimental protocol, ie. the external aims and methods of the research, has been explained to me.

5. The protocol sets out the risks that can be reasonably expected as well as possible discomfort for persons participating in the research, an explanation for the anticipated advantages for myself or others that are reasonably expected from the researcher and alternative procedures that may be to my advantage.

6. I will be informed of any new information that may become available during the research that may influence my willingness to continue my participation.

7. Access to the records that pertain to my participation in th study will be restricted to persons directly involved in the research .

8. Any questions that I may have regarding the research, or related matters, will be answered by the researchers.

9. If I have any questions about or problems regarding the study, or experience any undesirable effects, I may contact a member of the research team.

10. Participation in htis research is voluntary and I can withdraw my participation at any stage.

11. If any medical problem is identified at any stage during the research or when I am vetted for participation , such condition will be discussed with me in confidence by a qualified person and /or I will be referred to my doctor.

12. I indemnify the University of the North and all persons involved with the above project from any liability that may arise from my participation in the above project or that may be related to it, for whatever reasons, including negligence on the part of the mentioned person.

....
SIGNATURE OF RESEARCHED PERSON

....
SIGNATURE OF WITNESS

....
SIGNATURE OF PERSON THAT INFORMED THE RESAEARCHED PERSON

....
SIGNATURE OF PARENT / GUARDIAN

Signed at ..... this ..... day of 2004