OCCUPATIONAL SAFETY TRAINING AND PRACTICES IN SELECTED VOCATIONAL TRAINING INSTITUTIONS AND WORKPLACES IN KAMPALA, UGANDA

BY

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DECLARATION

I, **Kintu Denis** do hereby declare that this is my original work and it has never been published or presented to any university for an award.

Signature: .....

Date: 16th Oct - 2012.

APPROVAL

We, as the University supervisors confirm that this work is by the candidate.

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Signature: .....

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Principal Supervisor

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Date: 17/10/2012.....

Co-supervisor

DEDICATION

This work is dedicated to my little children; Ambrose and Mebra, who have put up with all the inconvenience caused during the course of this research.

ACKNOWLEDGEMENT

The completion of this work is a result of my effort and efforts of many other people who deserve recognition.

First and foremost, I am grateful to God for the inspiration, strength, vision, wisdom and understanding that made me carry out this research successfully. I am forever indebted to him.

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ACRONYMS AND ABBREVIATIONS

BS OHSAS:	British Standard Occupational Health and Safety Assessment Series
BTVET:	Business Technical Vocational Education and Training
ERO:	European Risk Observatory
ILO:	International Labour Organization
MoES:	Ministry of Education and Sports
MVP:	Masters in Vocational Pedagogy
NCDC:	National Curriculum Development Centre
OSH:	Occupational Safety and Health
PPE:	Personal Protective Equipment
UMA:	Uganda Manufacturer's Association
UNESCO:	United Nations Educational Scientific and Cultural Organization
VET:	Vocational Education and Training
VTI:	Vocational Training Institution
WHO:	World Health Organization

ABSTRACT

There have been several cases of industrial accidents in Uganda, some of them fatal. It is possible that there could be a training gap in both vocational training institutions and workplaces. This study set out to investigate how occupational safety training in vocational training institutions and workplaces is implemented to promote safety at work. The objectives of the study were to: examine how occupational safety training is carried out in vocational training institutions; establish how occupational safety training is carried out and practiced in workplaces; and to identify constraints to occupational safety training in both vocational training institutions and workplaces. A descriptive study design was used. Five vocational training institutions and workplaces were randomly selected for the study which involved instructors, workshop technicians, students, workshop managers, production supervisors, machine operators, and newly recruited technicians. In total 35 respondents. Data was collected using interviews, observations and documentary analysis methods. The instruments were pre-tested and the necessary adjustments made to improve the validity and reliability. The researcher established that in vocational training institutions, all courses have a component of safety in the curriculum but not much is practiced in the institution workshops. Also the vocational training institutions have inadequate industrial attachment programmes for both staff and students. In the workplaces no specific training content was being used and majority of the respondents felt that they are not regularly consulted by the vocational institutions on safety skills requirements in industry, which results into a miss-match in safety skills training. The major constraints to safety training include: inadequate funds to purchase safety equipment; and insufficient literature on safety. It was recommended that government should implement occupational health and safety at all levels of training, hence leading to an in-built safety culture in future workers; increase funding for vocational training institutions to enable them acquire safety training equipment; vocational training institutions should vigorously promote industrial attachment programmes for both staff and students; and the workplaces should increase occupational safety awareness programmes through sustainable training and information activities for all the workers.

CHAPTER ONE

1.0 Introduction

In this study, the researcher analyzes how occupational safety training in vocational training institutions and workplaces is implemented to promote safety at work. A comprehensive definition of occupational safety; global estimates of occupational accidents; occupational accidents in Uganda and personal views and experiences related to occupational hazards and safety training are highlighted. It is from this analysis that the researcher lays the problem under investigation.

1.1 Background to the study

1.1.1 Occupational Safety

Occupational safety is a cross-disciplinary area concerned with ensuring the safety, health and welfare of people engaged in work or employment. The goal of all occupational safety and health programs is to foster a safe work environment. As a secondary effect, it may also protect co-workers, family members, employers, customers, suppliers, nearby communities, and other members of the public who are impacted by the workplace environment (WHO, 1995).

The International Labour Organization (ILO) and the World Health Organization (WHO) at its twelfth session in 1995 adopted the following aims of occupational safety and health: the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention amongst workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological capabilities.

In 2008, the Seoul[1] declaration on safety and health at work was adopted. It reaffirms the principle that the right to a safe and healthy working environment should be recognized as a fundamental human right. Such a principle applies equally to ensuring protection against both emerging and well-established Occupational Safety and Health (OSH) risks. The declaration was adopted during the summit held at the XVIII World congress on safety and health at work in Korea, where high-level representatives from around the world committed unanimously to pursuing the protection of this fundamental human right through the implementation of the declaration. The ILO estimates that more than 2 million workers die each year from work-related accidents and diseases, and this is probably an underestimate. The ILO also estimates that workers suffer 270 million accidents at work every year. Avoidable occupational diseases affect 160 million people every year (ILO, 1996). In Sub-Saharan Africa countries, slightly more than 54, 000 fatal occupational accidents happen annually (Hamalainen, Takala, Saarela, 2005).

In Uganda, out of an estimated ten million economically active population, the estimated number of occupational related accidents was 2,168 with a fatality rate of 21.7% (Hamalainen, et. al, 2005).

1.1.2 Occupational Accidents in Uganda

Notable occupational accidents to Vocational Education and Training (VET) graduates in Uganda have occurred in the following places: On Friday, 21st July (Ssenjjoba & Musinguzi, 2011) reported that a maintenance engineer had died in a factory accident when he was crushed during machine maintenance at Roofing Steel mills Plant in Namanve Industrial area; On 26th September (Yolisigira, 2010) reported that two technicians had died and ten others were seriously injured at Tembo Steel rolling mills factory in Iganga when a continuous casting

[1] Seoul is the capital of the Republic of South Korea.

machine section at the factory snapped causing the scrap metal melting chamber to topple over them ; On 28th June (Tuhairwe, 2011) reported that a melting furnace had exploded at Roofing Steel mills Plant in Namanve Industrial park and 6 technicians who were at the basement to ensure proper running and maintenance, had sustained severe injuries on their faces, arms, heads, and legs; and on 27th February (Kizito, 2012) reported that at least 3 welders had been seriously injured when a spirit fuel tanker they were working on burst in Kawempe, a Kampala suburb

Based on cases that have been reported, it is evident that VET graduates in Uganda have continued to be involved in fatal accidents while at work.

1.1.3 Researcher's experience

The researchers' experience in technical colleges[2] is that safety training tends to be generalized yet workplace safety requirements are specific in nature depending on the tasks at hand. Furthermore, many students are allowed in the training workshops without proper personal protective equipment and which trend is passed on to the workplaces. In the different workplaces[3] where the researcher has been engaged, it was observed that safety training especially for the inexperienced young workers is not priotized, yet these are vulnerable to occupational accidents. Instead, they are left to be trained by a few experienced workers. Also, because of precarious employment status, many people accept jobs where they are not insured, registered, with low safety standards, low wages and poor working conditions. Furthermore, in an attempt to raise more income, most workers engage in working overtime (defined as the ratio of actual work to standard work). Working overtime increases the probability of workers to make

[2] The researcher was a student at Uganda Technical College – Elgon (1998-2000); and Uganda Polytechnic-Kyambogo (2000-2002).
[3] The researcher worked as a maintenance technician at Shumuk Aluminium Industries (2000-2002); and as a mechanic at China Jiefang (U) ltd (2002-2003).

mistakes which can lead to occurrence of accidents. It is against this background that the researcher lays out the problem under investigation as well as the purpose and the objectives of the study.

1.2 Statement of the problem

The world over, vocational education and training prepares individuals for jobs that are practical in nature and related to a specific trade, occupation, or vocation. In Uganda, majority of the graduates are gainfully self employed while others find employment at different workplaces such as factories, construction sites, as drivers and in privately owned workshops. However, while in these workplaces, they are exposed to numerous occupational accidents resulting into low levels of productivity, work morale, and high costs to companies in form of compensation to the victims. There is therefore a need to investigate how occupational safety training in vocational training institutions and workplaces is implemented to promote safety at work.

1.3 Purpose of the Study

To investigate how occupational safety training in vocational training institutions and workplaces is implemented to promote safety at work.

1.4 Objectives of the study

The study was guided by the following objectives:

- To examine how occupational safety training is carried out in vocational training institutions.
- To establish how occupational safety training is carried out in workplaces.
- To identify constraints to occupational safety training in both vocational training institutions and workplaces.

1.5 Research Questions

The study was guided by the following questions:

- How is occupational safety training being carried out in vocational training institutions?
- How is occupational safety training being carried out in the workplaces?
- What are the constraints to occupational safety training in both vocational training institutions and workplaces?

1.6 Scope of the study

The scope outlines parameters within in which the study was carried out covering the content, geographical and time scope.

1.6.1 Content Scope

The study examined how occupational safety training was being carried out in vocational training institutions and workplaces. It also analyzed the constraints to occupational safety training in both vocational training institutions and workplaces. The study was limited to only mechanical and production engineering workshops.

1.6.2 Geographical Scope

The study was carried out at selected vocational training institutions and workplace settings around Kampala District, Central Uganda. The choice of Kampala as a study area was due to the fact that it is a regional hub for vocational training institutions and mechanical and production engineering workplaces. The vocational training institutions included; Kampala Polytechnic Mengo, Lugogo Vocational Training Institute, Nakawa Vocational Training Institute, Bbira Vocational Training Centre, and St Joseph's Technical Institute, Kisubi all within the vicinity of Kampala.

The workplaces were: Shumuk Aluminium Industries-Nakawa, Uganda Baati Ltd-Industrial Area, John Lugendo Foundry Workshop-Ndeeba, Kyeyune Motors Garage-Makerere, and Lukungu and Sons welding Workshop-Banda.

1.6.3 Time scope

The study was based on information for the period 2000 to 2012.

1.7 Justification of the study

Despite the fact that there is occupational safety training in both vocational training institutions and workplaces, occupational accidents continue to occur in places of work amongst VET graduates. The study identified the training gaps and the constraints to occupational safety training in both places.

1.8 Significance of the study

This study gives firsthand information to employers on how to improve working conditions for employees at different workplaces.

The study could be of importance to vocational training institutions, because it highlights shortfalls in safety training.

The information in this research study could serve as a source of reference to other researchers regarding safety at workplaces and training institutions.

The study report has improved on the researchers' skills in collecting, organizing, analyzing and documentation of data.

1.9 Limitations of the study

Lack of enough funds to successfully carry out the study- The money needed for processing the work in form of typing, printing, photocopying, binding and movement from one study place to the other was quite a lot. However, the researcher used some of his personal savings.

Three out of the five workplaces where the study was conducted did not allow the researcher to take photos despite assurances that the study is intended for academic purposes only. However, photos from two workplaces have been included.

The respondents from all the workplaces were so busy. They availed little time for interviews with the researcher.

1.10 Conceptual framework

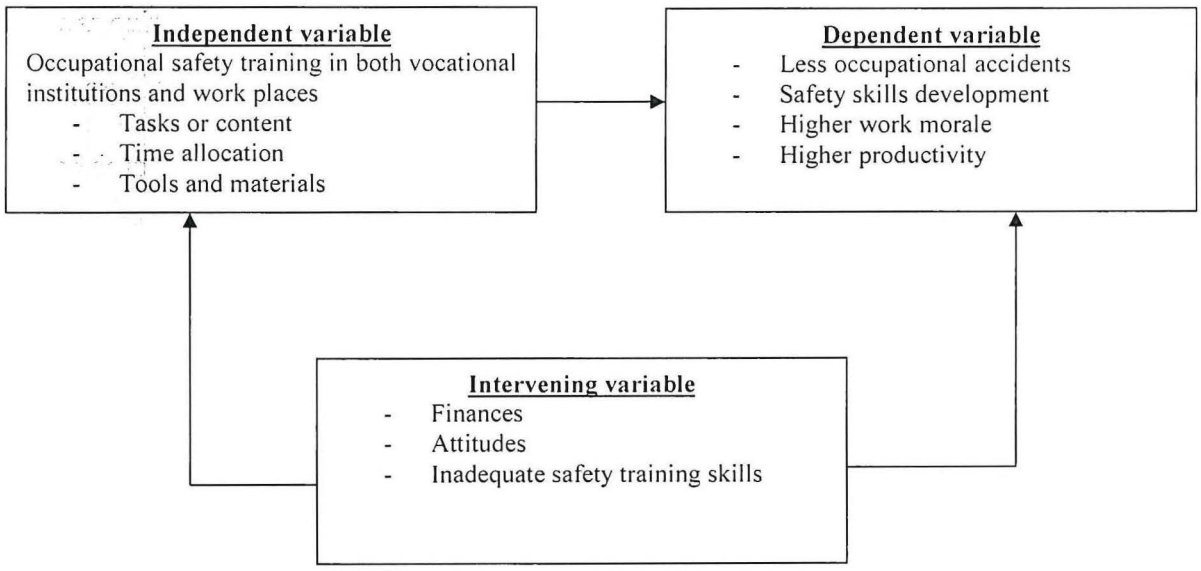


Figure 1: Conceptual framework

Occupational safety training in both vocational training institutions and workplaces is the independent variable while reduced occupational accidents and safety skills development are some of the dependent variables. The relationship between the two is that appropriate safety training coupled with the right tasks/content, tools/materials and enough training time can lead to reduced occupational accidents and safety skills development.

On the other hand, the intervening variables such as finances to purchase safety gear, inadequate safety training skills and attitude tend to affect appropriate safety training thus creating a gap which results in occupational accidents.

1.11 Definition of operational terms

Occupational safety: Is a cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment.

Occupational Accident: An occurrence during the course of work which results in a fatal or non fatal occupational injury.

Training: Training refers to impartation of specific skills or knowledge in an individual to enable him gain expertise in that area. A trained person is one who can demonstrate competence. The concept of training is mainly used in relation to vocational and technical education.

Education: Knowledge acquired by learning and instruction.

Workplace: Any premises or setting where a person performs work in the course of his/her employment.

Vocational Education: A process by which practical training is transmitted from one to another geared towards a specific trade or occupation for economic benefit.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

In this chapter, the researcher presents scholarly views coupled with personal experiences and reflections in regard to occupational safety training in Vocational Institutions and Workplaces.

2.1 Occupational safety training in vocational institutions

Mainstreaming occupational safety and health (OSH) into the education of learners and people has an important part to play in developing and improving safety cultures in the workplace. This is recognized in European Union strategy on occupational health and safety and in the OSH strategies of the Member States. The European Union Community strategy on health and safety at work for 2002–2006 underlined the need to strengthen the prevention culture by means of education and training. OSH should be part of an integrated strategy to encompass all the necessary aspects of education, training, research, and innovation for tomorrow's European Union[4]. In particular, there has been increasing recognition that risk education should form part of the training for those entering manual vocational trades and there has been a great deal of activity to embed it into vocational courses and develop suitable, participative learning methods and resources. The researcher is in agreement with the European Union strategy of ensuring that professionals entering the workforce have adequate risk education in order to develop the necessary OSH skills, knowledge and attitudes. This need is more evident for mechanics and civil engineers who will have legal duties regarding the design, planning and execution of projects. But if OSH is truly to become an integral part of business management in all sizes of organizations, then all future managers and professionals need relevant risk education, not just

[4]European Commission, 2002: http// eur-lex. Europa.eu/lex uriserve/FIN:EN:PDF.

those who will work in high risk sectors. As there has been less activity regarding risk education to date at tertially-level; and because it presents some special challenges, related to the autonomy of tertially institutions and the types of teaching methods traditionally used, the sharing of experiences and resources at the tertially-level is particularly important. It is important to be aware of the challenges and to identify what seem to be the more successful approaches that can be taken (Takala, 2010).

In conclusion, available literature has emphasized the need for safety training in vocational training institutions with appropriate participative learning methods and resources to foster the development of a safety culture in the workplaces.

2.2 Occupational safety training in workplaces

The purpose of orientation training is to provide the employee with task-specific knowledge and skills in his or her job/work area. The knowledge and skills presented during orientation training are directly related to those they will perform on the job. Orientation safety training can be one of the best training methods because it is planned, organized, and can be conducted at the employee's workstation. Orientation safety training is generally the most common method used to broaden employee skills and increase productivity. It is particularly appropriate for developing skills unique to an employee's job. Since most safety training requires hands-on practice and demonstration, orientation safety training is a great way to meet work safety expectations (Geigle, 2011, p.14).

Geigle (2011), further points out that through the promotion and implementation of the organization's occupational health and safety policy, management should make employees aware of both potential and actual hazards in the workplace. A job hazard analysis procedure

should be applied, in order to ensure the dangers inherent in each job step. This is however, not the case basing on the researcher's experience in industry. Most of the time is dedicated to production activities so as to meet customer job orders and only little time is left for sensitizing employees on potential work hazards.

There are several ways in which organizations may provide health and safety messages in the workplace. At the onset, during the induction process for new employees, critical elements of an organization's health and safety programmes are discussed, to make employees aware of existing company safety policies. They are told about potential hazards and risks that pertain to their work environment. They are also made aware of correct operational procedures that help prevent accidents while carrying out their duties.

Depending on the availability of funds, in house publications, calendars, posters, stickers; and bulletin boards indicating, for example, time lost due to injuries in the workplace, can be used to promote occupational health and safety. These are vital forms of communication, as they highlight an organization's goals in its accident prevention efforts. Toolbox talks or meetings can be held. These are meant to be brief, usually 10 or 15 minutes. The topic of the day is normally facilitated by a shift supervisor, the aim being to introduce or remind workers of the potential occupational health and safety risks of their jobs (Kiwekete, 2008, p.13).

Kiwekete (2008) further explains that administrative controls are those instituted by business owners, such as restricting specific machines or processes to personnel who are trained and able to operate the equipment safely. Personal protective equipment is also used, although this is

considered to be the least effective way of mitigating hazards and is used when other approaches are not feasible or only partially effective. The training of workers themselves in occupational health and safety issues, as well as workers' rights within the workplace has been an important part of improving working conditions. When workers are aware of hazards and understand the code of conduct, they can and do initiate discussions with business owners that result in positive changes within the work environment. Workers' training is essential to every employer's safety program. The time and money it takes to train workers is an investment that pays off in fewer workplace accidents and lower insurance premiums. Effective training also helps inexperienced workers, who tend to have higher injury and illness rates than experienced workers. Ideally, safety training should occur before exposure or accident occurs. Training should cover both general safety and health rules and specific work procedures, and should be repeated if an observation, near-miss incident or injury accident occurs due to a lack of knowledge or skills. Problems that can be addressed effectively by training include those that arise from lack of knowledge of a work process, unfamiliarity with equipment or incorrect execution of a task (Geigle, 2011).

On-the-job training may not entirely fulfill the training needs. The British Standard Occupational Health and Safety Assessment Series (BS OHSAS) suggests that some employees may have particular needs. For example: new recruits need basic induction training on how to work safely, including arrangements for first aid, fire and evacuation , people changing jobs or taking on extra responsibilities need to know about any new health and safety implications, young employees are particularly vulnerable to accidents. Their needs require particular attention, and so their training should be a priority. It is also important that new, inexperienced or young

employees are adequately supervised; some people's skills may need updating by means of refresher training (BS OHSAS 18001, 2007). The researcher agrees with the BS OHSAS suggestions; however experience from Ugandan enterprises indicates that most are privately owned and operate on small scale. The owners dedicate most of their resources on production to maximize profits and less emphasis is put on refresher training for their employees.

In conclusion therefore, literature has shown that occupational safety training at workplaces is vital because it indicates to both management and employees potential and actual hazards in the workplace and this is the starting point for taking appropriate safety measures.

2.3 Constraints to occupational safety training in vocational training institutions and workplaces

According to the European Risk Observatory (ERO), recent decades have seen significant technological advances in the workplace, which, together with rapid globalization, have transformed work for many throughout the world. The effects of such changes on occupational safety and health (OSH) have also been significant. In some cases, more traditional hazards and risks have been reduced or eliminated, for example through plant automation, but new technologies have also created new risks. Many of the traditional workplace risks persist however, and the numbers of work-related accidents and diseases are still unacceptably high. At the same time, many workers are exposed to 'new' risks emerging from changing patterns of work, for example because of conditions arising from precarious employment and increased pressures to meet the demands of modern working life. Workforce age profiles are also

changing, as is the gender balance in many workplaces. These changes in employment patterns have created evident risks that were either less prevalent or less obvious previously[5].

As a result, many governments and employers' and workers' organizations have placed greater emphasis on prevention, recognizing that risks have to be managed and controlled and that OSH management systems are vital for preventing occupational accidents and ill health. There is also an increasing acceptance that taking action for safety and health is good for enterprise productivity and quality employment. As a result, and in spite of the global economic recession, many stakeholders are working to ensure that standards of OSH are maintained (ILO, 2010).

Abongomera (2009, p.19) identified the following constraints to the adaptation of OSH standards and training:

Laws and regulations; Many developing countries currently have no standard laws and regulations. Some countries have drafts for laws and others do not even have drafts. Countries with laws and regulations cannot use the laws to compare the delivery of occupational health services from one country to another, since there are many variations within the laws of different countries. This view is also supported by Mukasa and Miti (2007) who commented that most current regulations are narrow in scope and seem not to address the safety requirements of the industry to date, which is aggravated by inadequate enforcement, dismal penalties, lack of awareness and understanding and therefore limited compliance.

Safety and Health Management System; In developing countries, the department of occupational health and safety is situated in different ministries. In Uganda, the department is situated in the ministry of gender, labour and social development. Elsewhere, the corresponding department is within the ministry of health in some countries and within the ministry of home

[5] 'New and emerging risks in occupational safety and health', European Risk Observatory. European Agency for safety and Health at Work, December 2009. http://osha.europa.eu/en/publications/outlook/en-te810847enc.pdf.

affairs or social services in other countries. Hart, Harber , Lee , Canoutas, Young and Clapp (2012) are also of the view that an organization's structure and systems including policies, procedures and work processes must be in place and optimized to support the goals of the organization and the specific tasks of individual workers. Training alone cannot correct performance that results from inadequate or inefficient organizational systems. Individual learners also look to their organization's commitment to high-quality standards for service delivery and provider performance. In an organization that values high-quality performance, learners are more likely to value the training and to use the new knowledge and skills, leading to improved performance. Furthermore, in the view of Hart et al (2012) administrative support has been proven to influence the transfer of learning. Examples of supportive behavior include administrators and supervisors participating in the training, discussing new learning, tying performance improvement to compensation or other rewards, and encouraging learners to use their new skills. A post-training debrief can enable learners, co-workers and supervisors to discuss individual or group action plans for using new knowledge and skills. Providing the opportunity to perform the new job tasks as soon as possible is essential. Supervisors should also monitor the progress of learners in applying the new skills. This could be informal or part of a formal monitoring and evaluation plan, but progress should be monitored against the knowledge. Additionally, Hart et al (2012) comment that the administration sets short- and long-term learning goals. The principles of cognitive theory state that goal setting is important for learning. Goals for the training should be based on the gaps in knowledge and skills. It is important to set both short- and long-term goals, as these together are more effective than long-term goals alone. Administration assesses learners; sets work and job tasks; gather information about learners from performance assessments, interviews, observations and other means. Information to be gathered

may include learners' desired outcomes, educational background, work experience, job responsibilities, and language and reading level. The work setting assessment should include the supervisory system, available job aids and equipment, and work processes in all groups affected by the implementation of new skills. Also identifies resources and requirements for training, such as certification requirements or available funds.

Tools, machinery and technology; Most developing countries lack proper instruments and equipment required for proper delivery of occupational health services and training. For instance, most countries do not have the equipment required for measuring the flow of air into and out of the lungs or for analyzing blood samples taken from a person suspected of suffering from toxicity due to organic or metallic substances.

There is a minimum of proper diagnosis of occupational diseases; in the worst of cases, there is no attempt to diagnose occupational diseases.

Information and networking; In many departments of occupational safety and health, the records kept are inadequate or there is even no recordkeeping. Most countries do not even know which occupational diseases are the most common among their workforce or what the leading causative factors of accidents are. Collaboration with the ILO in many developing countries is very poor. At the occupational safety and health department in Kampala, Obua and Okimait (2000) noted that one of their major constraints is that the library and information service does not have necessary equipment and updated publications, and therefore the dissemination of information is difficult.

Informal economy and OSH; The informal economy has expanded markedly and now accounts for a large proportion of workers in many countries, especially in developing ones. There has also been an increase in the numbers of migrant workers, who, because of precarious

employment status, may often have to accept jobs with low OSH standards, low wages and poor working conditions.

The majority of informal economy workers are not registered, regulated or protected under labour legislation; they have little access to OSH advice and information and do not have the necessary awareness, technical means and resources to implement preventive measures. As a consequence, poor OSH standards persist in the informal economy, and implementing and maintaining better standards will be a key challenge in addressing emerging risks in the future. It will be important to ensure that OSH measures are fully integrated within broader employment programmes to improve working conditions.

Older workers and new trends; Most developed countries are experiencing unprecedented process of population ageing with the increase of older workers. A similar evolution is projected for many developing countries. Older workers are more vulnerable to certain risks, such as infectious diseases and musculoskeletal disorders. Examples of accidents and injuries more prevalent among older workers include falls due to poor balance, slower reaction times and visual problems; and sprain and strain injuries due to loss of strength, endurance and flexibility. They also are more likely to have a greater incidence of diseases with a long latency period, such as occupational cancer. When older workers have accidents, their injuries are often more severe and they may also take longer to recover. Sound occupational safety and health policies and practices that invest in workers' safety, health and well-being during their entire working life are therefore necessary to keep them employed longer and to ensure their well-being.

Younger workers' work conditions; Young workers are often engaged in hazardous and precarious work, a situation which will have long-term implications for the health and quality of life of the global workforce. When new to the workplace, young people may lack physical and

psychological maturity and their lack of skills, training and experience may result in their being ignorant of the risks they face. They may also be unaware of their own rights and duties, as well as of their employer's responsibilities; they may lack the confidence to speak up when there is a problem. Employers may also be unaware of the specific vulnerability of young people. This situation can be overcome by providing young workers with work that is appropriate to their skills and with adequate OSH training, supervision and safety measures.

In conclusion, the researcher agrees with the above hindrances to the adaptation of OSH standards and safety training in both the vocational training institutions and workplaces.

2.4 Summary of the chapter

Available literature has emphasized the need for safety training in vocational training institutions and workplaces with appropriate participative learning methods and resources to foster the development of a safety culture in the workplaces. Furthermore occupational safety training at workplaces is vital because it indicates to both management and employees potential and actual hazards in the workplace and this is the starting point for taking appropriate precautionary safety measures.

The researcher is of the view that identifying constraints to occupational safety training in both the vocational training institutions and workplaces and addressing them can promote a safety culture in workplaces.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

In this chapter the researcher describes the methods that were used in the study. It includes the research design, area of study, target population, population sample, research instruments used, research procedure and analysis of data.

3.2 Research design

A descriptive design was used. It followed a qualitative approach using non statistical methods to analyze data gathered through observation of activities, personal interviews and analysis of documents. Amin (2005 p. 43) explains that qualitative research is a method which provides an understanding of a social setting or activity as viewed from the perspective of the research participants.

3.3 Study Area

This research was carried out in Kampala District-Uganda. Five vocational training institutions were selected randomly from a list which was obtained from the Business Technical Vocational Education and Training (BTVET) department of the Ministry of Education and Sports. These were: Kampala Polytechnic Mengo, Lugogo Vocational Training Institute, Nakawa Vocational Training Institute, Bbira Vocational Training Centre, and St Joseph's Technical Institute, Kisubi all within the vicinity of Kampala.

Five Workplaces were also selected randomly from a list of mechanical engineering settings and workshops which were drawn up by the researcher within the vicinity of Kampala and these were: Shumuk Aluminium Industries-Nakawa, Uganda Baati Ltd-Industrial Area, John Lugendo

Foundry Workshop-Ndeeba, Kyeyune Motors Garage-Makerere, and Lukungu and Sons welding Workshop-Banda.

3.4 Target population

The study population comprised of Instructors, workshop technicians, students, production supervisors, machine operators, newly recruited technicians and workshop managers. These respondents were targeted because they are the major stakeholders in safety training and practices in both the vocational training institutions and workplaces. This selection enabled the researcher to get crucial data about the study problem.

3.5 Sampling Size

A total of 35 respondents were chosen to participate in the study. Out of the five selected workplaces, four respondents were chosen and these included: a production supervisor, a machine operator, a workshop manager and a newly recruited technician. Similarly, three respondents were chosen from each of the five vocational training institutions and these included an instructor, a workshop technician and a student.

3.6 Sampling Techniques

Data was collected from all the 35 respondents using three methods of sampling technique.

These were; Convenience sampling (machine operators and production supervisors), Purposive sampling (newly recruited technician and workshop managers), Random sampling (students, workshop technicians and instructors). Data from students in vocational training institutions was got from students from the different mechanical programs. Instructors and technicians were selected randomly from those who handle mechanical programs.

Convenience sampling was used to select respondents who were willing to participate in the

study especially for the workplaces. Dooly (1995) observes that the individual is selected because of ease of reaching him/her or because of convenience to the researcher. The nearest individuals or the ones available at the time of sampling are selected (Cohen & Manion, 1994). This method was applied in choosing the machine operators and supervisors because they were always busy with their work. The managers and newly recruited staff were selected purposively because of their positions. Purposive sampling is also known as judgmental sampling; the participants are sampled on the basis of their typicality, or because they are satisfactory to the research needs (Cohen and Manion, 1994).

3.7 Data Collection Methods

The collection of data for this study took two forms, namely; Field data and secondary data. Collection of field data involved the use of an interview guide and an observation checklist to gather information from the selected respondents. Collection of secondary data involved the review of official documents such as files, memos, textbooks, journals, magazines, resource centres, and internet.

3.7.1 Interview Method

In this method, face to face interviews between the researcher and the correspondents were carried out. An interview guide with open ended questions was used to collect data from the respondents. This ensured accurate information and allowed deeper investigation into the study problem. It also enabled the researcher to observe non verbal communication. Bhandarkar et al. (2000) as cited in Odiya (2009 p.170) classified interviews as focused or clinical. In focused interviews, attention is focused on a respondent's experience. The researcher has a definite set of topics to be covered, and seeks a definite type of information. During the interview therefore,

he/she focuses on the topics of interest and the information required.

3.7.2 Observation method

Information was also gathered through observations. This was done as interviews were being carried out at the premises. Bhandarkar, Wilkinson, & Laldas, (2000) as cited in Odiya (2009 p.169) notes that observations may be structured or unstructured. Structured observations are characterised by well defined units to be observed, information to be recorded and how to observe it. A well structured observation checklist was used. The observations took place in such a way that the people who were being observed were not aware because if they were, naturally they change behaviour. Photos were also taken to capture safety training and practices.

3.7.3 Documentary Analysis

This information was collected from text books, magazines, journals, and internet, newspapers, files, memos, and resource centres. This supplemented on data which had been gathered from the primary sources.

3.8 Data Collection Techniques

3.8.1 Objective one;

Data for this objective was obtained through analysis of official documents such as the curriculum, observations using an observation checklist (Appendix II), face to face interviews with instructors, workshop technicians and students using interview guides (Appendix I).

3.8.2 Objective two;

Data for this objective was obtained through observations using an observation checklist (Appendix II), and face to face interviews with newly recruited technicians, production supervisors, machine operators and workshop managers using interview guides (Appendix I).

3.8.3 Objective three;

Data for this objective was obtained through face to face interviews with instructors, workshop technicians, students, newly recruited technicians, production supervisors, machine operators and workshop managers using interview guides (Appendix I).

3.9 Research Procedure

The researcher got an introductory letter from Kyambogo University introducing him to conduct research in the stipulated areas. This helped to eliminate any suspicion from some respondents who would otherwise think that the researcher was in for something other than academic. Data collection then proceeded by administering face to face interviews to the selected respondents.

3.10 Validity and Reliability of instruments

On the validity and reliability of instruments, these were first examined by colleagues on the same program and then scrutinized by the supervisors to ensure that the terms used in the interview guides were precisely defined and properly understood. According to Frank (1990, p.112), a valid instrument does not only measure what it is constructed for but must also measure it accurately. Also a reliable instrument has a high degree of consistence and will give you the same value if it is used a number of times to measure the same variable provided the variable does not change.

3.11 Data Analysis Method

Thematic content analysis was used as the main analysis strategy. Key findings were transformed into themes for analysis and presentation of data. Narrative reasoning was used to interpret the findings and these were logically argued out. Thematically, study findings were first coded and consequently arranged in themes and sub-themes.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF RESULTS/FINDINGS

4.0 Introduction

This chapter presents and discusses results/findings from the study. Data was gathered by interviewing thirty five respondents from five randomly selected vocational training institutions and workplaces in Kampala, Uganda. Data was also collected by analyzing curriculum documents and carrying out observations on safety training facilities and practices. The key issues centered on occupational safety training and the constraints in both vocational training institutions and workplaces. The findings are presented following the research objectives.

4.1 Occupational safety training and practices in vocational training institutions

To obtain data required for this issue, views of instructors, workshop technicians and students were sought using interview guide sections two and three (Appendix I). Observations and analysis of curriculum documents of mechanical engineering programs was done. The programs considered for this study were four and these included: welding and fabrication; fitting and machining; motor vehicle mechanics and sheet metal and plumbing.

4.1.1 Occupational safety training and practices in vocational training institutions curriculum

The curriculum of the four mechanical engineering programs was analyzed to find out if safety training was being taught. The results are indicated in table 1;

Table 1: Programs and specific course units/topics on occupational safety

Program	Course Unit	Topic on occupational safety
Welding and fabrication	Safety rules, procedure, hygiene and sanitation Workshop practice	_
Fitting and machining		Safety precautions and regulations in the workshop
Motor vehicle mechanics craft one	Workshop Technology I	General workshop regulations, instruction in basic safety precaution.
Motor vehicle mechanics craft two advanced	Principles and practices of workshop organization and management	Occupational safety, health, security and environment.
Sheet metal and plumbing	Welding	Safety rules and precautions

Source: Field data, 2012

From Table 1, it is evident that occupational safety is a section under various courses for most programs except in welding and fabrication where it is a course unit known as safety rules, procedure, hygiene and sanitation. It can be seen that all the programs have a component on safety training. Furthermore, the researcher was informed that a new curriculum being designed at National Curriculum Development Centre (NCDC) will incorporate safety training modules for all these programs.

4.1.2 Safety training and practices in vocational institution workshops

Information on occupational safety training and practices in the vocational training institutions workshops was sought using a well structured observation checklist (Appendix II). A summary

of what was observed is indicated in Table 2:

Table 2: Safety practices/items observed in the vocational training institutions

Safety practice/Item Observed	Vocational Training Institution One	Vocational Training Institution Two	Vocational Training Institution Three	Vocational Training Institution Four	Vocational Training Institution Five
Condition of the machines/equipment i.e. Are they fitted with proper safety guards? Are the electric cables properly insulated?	All the machines seen were fitted with proper safety guards.	In the welding workshop, a welding cable not properly insulated was seen	The machines seen were in proper condition.	In the motor vehicle workshop, some vehicles were seen hinged on blocks	The machines seen were in proper condition
Availability of safety equipment such as fire extinguishers and first aid facilities.	Fire extinguishers and, water hydrants seen but no first aid facilities seen	Fire extinguishers seen but no first aid facilities were seen	Fire extinguishers but no first aid facilities were seen	None was seen	Only fire extinguishers seen
Dressing code for the trainees.	All the trainees seen had overalls and safety boots.	Majority of the trainees had overalls but lacked safety boots.	Some trainees lacked overalls and safety boots.	Trainees seen dressed in overalls but without safety boots.	Trainees seen dressed in overalls but without safety boots.
Availability of enough working space.	Spacious work area	Spacious work area	Spacious work area	Spacious work area	Spacious work area

Source: Field data, 2012

As indicated in Table 2, the researcher observed that in vocational training institutions one, three and four, the machinery/equipment seen were in good working state, fitted with proper safety guards. However, in the welding workshop, a welding cable not properly insulated and a blocked

passage way was seen in vocational training institution two. In the motor vehicle workshop at vocational training institutions four, some vehicles undergoing repair were seen hinged on old engine blocks.

Another important aspect of interest to the researcher was to observe the availability of safety equipment such as fire extinguishers, fire hydrants, fire alarms and first aid facilities at the training institutions. As indicated in Table 2, some of these facilities were seen in all the vocational training institutions except four. However, in all the vocational training institutions no first aid facilities were seen.

As regards the trainee dressing codes, most of them wore overalls and over coats except in institution three where some trainees lacked overalls/overcoats. A general observation in all the institutions was that most trainees lacked proper workshop safety boots.

Furthermore, another observation aspect was the availability of enough working space. In all vocational training institutions, it was observed that there was enough working space as indicated in Table 2.

The researcher is of the view that although all the programs have a component of safety training in the curriculum not much is practiced in the training institution workshops.

4.1.3 Aspects of occupational safety training from interviews in vocational institutions

In-depth interviews were administered to the instructors/workshop technicians in the vocational training institutions regarding the fundamental aspects of training such as tools/materials used, organization of training, content and the mode of training/delivery of content. A summary of the findings are presented in the Table 3;

Table 3: Fundamental aspects of occupational safety training from interviews

Training aspects	Vocational Training Institution one	Vocational Training Institution two	Vocational Training Institution three	Vocational Training Institution four	Vocational Training Institution five
Tools/materials used during training and practice.	Personal protective equipment like safety boots, overalls, helmets. Fire safety equipment like fire extinguishers, fire alarm switches and water hydrants.	Personal protective equipment like safety boots, overalls, helmets. Fire safety equipment like fire extinguishers, fire alarm switches and water hydrants.	Personal protective equipment like safety boots, overalls, helmets. Fire safety equipment like fire extinguishers, fire alarm switches and water hydrants.	Personal protective equipment like safety boots, overalls, helmets. Fire safety equipment like fire extinguishers, fire alarm switches and water hydrants.	Personal protective equipment like safety boots, overalls, helmets. Fire safety equipment like fire extinguishers, fire alarm switches and water hydrants.
Organization of learning.	The whole class as a group	The whole class as a group	The whole class as a group	The whole class as a group	The whole class as a group
Time accorded to training.	24 hours per term of three months	24 hours per term of three months	24 hours per term of three months	24 hours per term of three months	24 hours per term of three months
Essential contents that students are exposed to regarding safety	Personal safety and machine safety	Personal safety and machine safety	Personal safety and machine safety	Personal safety and machine safety	Personal safety and machine safety
Mode of delivery of content	Theoretically in class and during every practical	Theoretically in class and during every practical	Theoretically in class and during every practical	Theoretically in class and during every practical	Theoretically in class and during every practical

Source: Field data, 2012

From Table 3, it is indicated that the tools/materials commonly used during safety training and practice in vocational training institutions are Personal Protective Equipment (PPE) like safety boots, overalls, helmets; and fire fighting safety equipment like fire extinguishers, fire alarm switches and water hydrants.

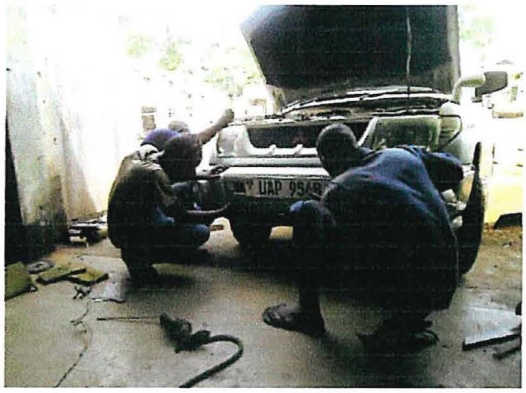
All the five instructors and workshop technicians interviewed in the vocational training institutions about the learning organization revealed that the whole class is engaged as a group. The time accorded to safety training is 24 hours per term of three months. The essential contents covered by the students include the use of personal safety equipment and machine safety. The mode of delivery of content includes both the theoretical aspects in class and during every practical session.

Figure 2: A fire extinguisher and a blocked passage way in a welding workshop at a training institute.



Figure 3: Students of motor vehicle mechanics during a practical session, pictured from two different vocational training institutions.





On how often instructors/workshop technicians in the five vocational training institutions had attended facilitation seminars/workshops regarding occupational safety for at least the last two years; the findings are presented in table 4:

Table 4: Number of times instructors from the vocational institutions had attended safety facilitation seminars/workshops

Vocational training institutions	Number of times instructors from the vocational institutions have attended safety facilitation seminars/workshops.
Vocational training institution one	Twice, training conducted by police fire brigade
Vocational training institution two	None
Vocational training institution three	None
Vocational training institution four	Once, training conducted by police fire brigade
Vocational training institution five	None

Source: Field data, 2012

From Table 4, it can be seen that two institutions have had their instructors/workshop technicians attend refresher courses or received facilitations in form of lectures regarding occupational safety training from the police fire brigade. The other three vocational training institutions had not organized similar training for their instructors and workshop technicians. In the view of the researcher, this implies that there are no strong collaborations between the vocational training institutions and the workplaces.

4.2 Occupational safety training and practices in the workplaces

Information on occupational safety training and practices in the workplaces was sought mainly using a well structured observation checklist (Appendix II). Interviews were also administered to the workshop managers, production supervisors, machine operators and new recruits following interview guide sections four and five (Appendix I).

4.2.1 Observations in the workplaces

An observation of important safety practices and items was carried out in all the five workplaces. A summary of what was observed is shown in Table 5:

Table 5: Safety practices/items observed in the workplaces

Safety practice/Item Observed	Workplace One	Workplace Two	Workplace Three	Workplace Four	Workplace Five
Condition of the machines/equipment i.e. Are they fitted with proper safety guards? Are the electric cables properly insulated?	All the machines seen were fitted with proper safety guards.	At least three machines lacked safety guards.	The few machines seen were in proper condition.	The melting furnace generated a lot of heat and fumes.	A welding cable was seen in a dangerous state, when not properly insulated
Availability of safety equipment such as fire extinguishers and first aid facilities.	Fire extinguishers and first aid boxes seen	Fire extinguishers, water hydrants and first aid boxes were seen	Fire extinguishers and first aid boxes seen	None was seen	None was seen
Dressing code for the workers/trainees.	All the workers and trainees seen had overalls, safety boots, gloves and some had helmets.	Majority of the workers had overalls but lacked safety boots.	Workers seen dressed in overalls but without safety boots.	Most workers had gloves but majority lacked overalls and safety boots.	Workers seen dressed in overalls but without safety boots.
Availability of enough working space.	Spacious work area	Congested work area	Spacious work area	Spacious work area	Congested work area
Condition of the working premises i.e. Are they well ventilated? Do they have enough light? Are there warning posters to the users?	Well lit and adequately ventilated, machines had warning posters.	Some fumes/smoke within the work area	Well lit and adequately ventilated machines had warning posters.	Well lit and adequately ventilated. But some workers worked under the sun. Some	Store area did not have enough light but was adequately ventilated
Use of other safety items such as nose masks in dusty places and ear muffs in noisy places.	Some workers were seen using them	Some workers were seen using them	Not so much of a requirement in this workplace	workers were seen using them	Not so much of a requirement in this workplace

Source: Field data, 2012

As indicated in Table 5, the researcher observed that in workplaces one and three, the machinery/equipment seen were in good working state, fitted with proper safety guards. However, in workplace two, the researcher saw at least three machines without safety guards; in workplace four the melting furnace generated a lot of heat and fumes; while in workplace five a welding cable was observed in a dangerous state, when not properly insulated.

Another important aspect of interest to the researcher was to observe the availability of safety equipment such as fire extinguishers, fire hydrants, fire alarms and first aid facilities. As indicated in Table 5, all these facilities were seen at workplaces one, two and three. However, in workplaces four and five none of these was seen.

As regards the employee/trainee dressing codes, in workplaces one and two employees were seen well equipped with personal protective safety gears. They wore overalls, over coats, workshop safety boots, gloves and some had helmets. However, it was not the same case with workplaces three, four and five, where most employees had overalls/overcoats but did not have proper workshop safety boots.

Furthermore, another observation aspect was the availability of enough working space. In workplaces one, three and four, it was observed that there was enough working space. However, in workplace two, because the products have to undergo another forming cycle there is congestion in the work in progress section. In workplace five, there was congestion resulting from old spare parts scattered all over.

As regards the condition of the working premises, as indicated in Table 5, all the premises were well ventilated and lit except workplace five where the store was dark and workplace two where there was a lot of smoke in the work area.

The researcher was also interested in observing the use of other safety items such as nose masks in dusty places and ear muffs in noisy places. As indicated in Table 5, some workers were seen using them in workplaces one, two and four which have noisy and dusty sections whereas in workplaces three and five these are not so much of a requirement in these workplaces because activities in these places are not noisy and dusty.

4.2.2 Aspects of occupational safety training from interviews in the workplaces

In-depth interviews were administered to the workshop managers, production supervisors and machine operators in the workplaces regarding safety training aspects and practices such as tools/materials used, organization of training, content and the mode of training/delivery of content, safety skills imparted and the major causes of occupational accidents. A summary of the findings are presented in the Table 6 below:

Table 6: Safety training aspects and practices/items in the workplaces

Safety training aspects and practices	Workplace One	Workplace Two	Workplace Three	Workplace Four	Workplace Five
When are new staffs engaged in safety training	During orientation period and when transferring to other sections	During orientation period	During orientation period	During orientation period and when transferring to other sections	During orientation period and when transferring to other sections
Tools/materials used during training	PPE like safety boots, overalls, helmets. Fire	PPE like safety boots, overalls,	PPE like safety boots, overalls,	PPE like safety boots, overalls,	PPE like safety boots,

	safety equipment like fire extinguishers, fire alarm switches and water hydrants.	helmets. Fire safety equipment like fire extinguishers, fire alarm switches and water hydrants	helmets. Fire safety equipment like fire extinguishers, fire alarm switches and water hydrants	helmets. Fire safety equipment like fire extinguishers, fire alarm switches and water hydrants	overalls, helmets. Fire safety equipment like fire extinguisher s, fire alarm switches and water hydrants
Content and method used to deliver training	No specific content; each particular equipment/machin e has specific safety requirements; new staff are trained by experienced ones	No specific content; new staff are trained by experienced ones	No specific content; new staff are trained by experienced ones	No specific content; new staff are trained by experienced ones	No specific content; new staff are trained by experienced ones
Whether safety training in the vocational training institutions is adequate for the workplaces	Yes	Not sure	To some extent	Yes	Not sure
Whether safety training skills imparted to the new recruits are adequate	Yes	Yes	Yes	Yes	Yes
Whether vocational institutions consult workplaces for specific skills to be instilled to students	None has ever	None has ever	None has ever	None has ever	None has ever
Major causes of occupational accidents in the workplaces	Working overtime, level of training, human behavior, the state of equipment and tools	No strict labour laws, level of training, human behavior, the state of equipment and tools	Working overtime, level of training, human behavior, the state of equipment and tools	level of training, human behavior, the state of equipment and tools	No strict labour laws, level of training, human behavior, the state of equipment and tools

Source: Field data, 2012

As indicated in Table 6, new staffs are engaged in safety training during orientation period and sometimes when transferring to other sections. The tools/materials used during training include PPE like safety boots, overalls, helmets, nose masks and ear muffs; Fire safety equipment like fire extinguishers, fire alarm switches and water hydrants. No specific content is followed during training and each particular equipment/machine has specific safety requirements; new staffs are trained by experienced ones who have stayed longer in the workplaces and are experienced.

On whether safety training in the vocational training institutions is adequate for the workplaces, respondents in workplace one and four were of the view that it is adequate. While those in workplaces two, three and five are not sure.

On whether safety training in the workplaces is adequate, all the respondents in workplaces were of the view that it is, as indicated in the table.

On whether vocational institutions consult workplaces for specific safety skills to be instilled to students, all the respondents indicated that none had for the past three years.

The respondents identified the major causes of occupational accidents in the workplaces as being; level of training; human behavior; the state of equipment and tools; working overtime; and lack of strict labour laws.

Figure 4: A new recruit who had just been provided with personal protective gear, while on the right, workers protect themselves from soda ash dust using nose masks in another workplace.



Figure 5: A machine with its belts and gears exposed at one of the workplaces and a warning poster at another.



4.3 Constraints to occupational safety training and practice in vocational training institutions and workplaces

Information regarding occupational safety training constraints in both the vocational training institutions and workplaces were sought using interview guide sections two, three, four and five (Appendix I). The findings are summarized in Table 7 below:

Table 7: Constraints to occupational safety training in both vocational training institutions and workplaces

Respondents from both vocational training institutions and workplaces	Constraints identified
Instructors/Workshop technicians/Machine operators	• Lack of adequate literature on occupational safety training inform of textbooks, brochures, magazines, newsletters in their libraries. • No clear guidelines set by the government on how occupational safety should be taught. • Inadequate administrative financial support to purchase safety equipment.
Students	• Lack of funds to purchase personal protective equipment.
Workshop managers/Supervisors	• Inadequate time to conduct safety training. • Inadequate training skills
Newly recruited technicians	• Long working hours, • Monotony, • Physical load, • Pressure to learn fast • Environmental factors such as heat and dust.

Source: Field data, 2012

From the field study as indicated in Table 7, the researcher discovered from all the five instructors interviewed in the vocational training institutions that there was lack of adequate literature on occupational safety training inform of textbooks, brochures, magazines,

newsletters in their libraries, among others needed for training.

The instructors also observed that there was no clear policy set by the government on how occupational safety should be taught and also noted that there are few professional safety training institutions in Uganda to benefit members through training and other safety related services.

Furthermore workshop managers in the workplaces and the instructors in the vocational training institutions revealed that there was inadequate administrative financial support to provide resources like safety tools, equipment, first aid facilities which facilitate training to both the workers and students.

Newly recruited technicians on training in the workplaces visited identified the main stress factors as being: long working hours; monotony; physical load; pressure to learn fast and environmental factors such as heat and dust.

Since most of the workshop managers, supervisors and machine operators interviewed, who carry out training in the workplaces, lack a background in education, this presents a major constraint. The researcher is of the view that probably wrong training methods were being used which cannot easily transfer the desired safety skills.

CHAPTER FIVE

CONCLUSION, RECOMMENDATIONS AND WAY FORWARD

5.1 Introduction

This chapter includes conclusions, recommendations and the way forward.

5.2 Conclusions

There are three main conclusions based on the findings of the study.

1. In the vocational training institutions, all courses as seen from the curriculum have a component of safety which is taught in the classes but not much emphasis is put in practicing it in the institution workshops. This was seen from the number of students who turned up for practical sessions without proper PPE.

2. In the workplaces, majority of the respondents were of the view that they are not regularly consulted by the vocational institutions on safety skills requirements in industry which implies that there are no strong collaborations between the vocational training institutions and the workplaces, which results into a miss-match in safety skills training.

3. In the workplaces no specific training content was being used.

5.3 Recommendations

Based on the findings and conclusions of this study the following recommendations have been made.

- The government should ensure that occupational health and safety is implemented at all levels of training, hence leading to an in-built safety culture in future workers.
- The vocational training institutions can seek supplementary funding from private agencies and local entrepreneurs for specific instructional programs like safety training programs and seminars for both students and instructors.
- For the realization of quality in safety practical skill training, the vocational training institutes should vigorously promote industrial attachment programmes for both staff and students.
- Managers in the workplaces should increase OSH awareness programmes through OSH sustainable training and information activities for all the workers.
- The ministry of education and sports should avail and promote the use of personal protective equipment in vocational training institutions.
- The government should establish a professional body like an institution of OSH to co-ordinate training and research in OSH.
- The ministry of labour and industry should promote OSH awareness and capacity building by organizing workshops/seminars in the workplaces so as to instill a safety culture.

5.4 Way forward

Aspects of vocational pedagogy can be used to improve safety training in both vocational training institutions and workplaces. Vocational pedagogy is the field of knowledge oriented towards trades, occupations and professions, and it emphasizes the interplay between working life and the education system (NOMA, 2008). In vocational pedagogy school and work are two sides of the same coin and are qualitatively different from the traditional formal school system which separates school and work. Work/activity is the central aspect (Mjelde, 1993).

Vocational education has three components, and these include practical skills, vocational theory and general knowledge (Mjelde, 2006). These are all addressed in vocational pedagogy, which is a learner-centered approach to teaching and learning, and the relationship between the students and the learning tasks is central.

5.5 Areas for further research

This research specifically dealt with safety training in mechanical engineering programs, training workshops and workplaces. Further research can be carried out on civil, building and electrical engineering programs, training workshops and workplaces which also experience occupational accidents.

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APPENDICES

APPENDIX I: DATA COLLECTION TOOLS

INTERVIEW GUIDE TO BE USED IN VOCATIONAL TRAINING INSTITUTIONS

Dear Respondent,

I am a student from Kyambogo University, from the faculty of vocational studies doing a Masters degree in vocational pedagogy. I'm carrying out research on occupational safety training in vocational institutions and workplaces in Kampala, Uganda. The study is intended to contribute to the improvement of occupational safety training in these institutions and therefore reduce on the number of occupational accidents. I would kindly request for some of your precious time to answer a few questions herein. The information that will be obtained during this interview will be given utmost confidentiality and used for academic purposes only.

Section one: Demographic Information

Gender Male Female

Occupational safety training in vocational training institutions

Section two: Interview guide for students in vocational training institutions.

1. Have you undergone occupational safety training yet? If yes,
2. What tools/materials do you use during the training at the Institute?
3. How was the learning organized? (Group work, individual, theoretical, practical)
4. What skills has the training instilled in you?
5. Do you think the instructors/workshop technicians are giving the right instruction during occupational safety training?

6. Do you think the occupational safety skills that you acquired will be adequate for you in the workplace?
7. What do you think are some of the challenges to occupational safety training at the Institute?
8. What suggestions can you make to improve occupational safety training at the institute?

Section three: Interview guide for instructors/workshop technicians in vocational training institutions

1. What is your field of specialization?
2. How often do you engage students in occupational safety training at the institute?
3. Are the students exposed to both theory and practical aspects during safety training?
   (a) If yes, how much time is allocated to each?
   (b) If no, why?
4. What are the essential contents that students are exposed to during this course?
5. What tools/materials do you use during the training at the institute?
6. How was the learning organized? (Group work, individual, theoretical, practical)
7. How often do you attend safety training sensitization seminars/workshops?
8. Is there any kind of administrative support given to occupational safety training?
   (a) If yes, briefly explain
   (b) If no, what could be the reasons for failure for the support?
9. Do you think the training given to the students is adequate enough to enable them cope with occupational safety requirements in workplaces?
10. What are the challenges faced during occupational safety training at the Institute?
11. What suggestions can you make to improve occupational safety training at the Institute?

Occupational safety training and practices in workplaces

Section four: Interview guide for production supervisor/manager/machine operators.

1. What is your field of specialization?
2. Do you think the content delivered to students on occupational safety in vocational institutions can appropriately apply to the workplace?
3. Do you engage new recruits in safety training? If yes,
4. Are they exposed to both theory and practical aspects during occupational safety training?
    (a) If yes, how much time is allocated to each?
    (b) If no, why?
5. What tools/materials do you use during the training?
6. How is the training organized? (Group work, individual, theoretical, practical)
7. Is there any kind of administrative support given to occupational safety training?
    (a) If yes, briefly explain
    (b) If no, what could be the reasons for failure for the support?

9. Do you think the training given to the new recruits is adequate enough to enable them cope with occupational safety requirements in here?
10. Do instructors/workshop technicians from vocational training institutions consult you for specific safety skills to be instilled into the students?
11. What do you think are the major causes of occupational accidents in the workplaces?
12. What are the challenges faced during occupational safety training?
13. What suggestions can you make to improve occupational safety training?

Section Five: Interview guide for new recruits in workplaces.

1. Have you undergone safety training? If yes, when?

2. What tools/materials do you use during the training?

3. How is the training organized here in the Workplace? (Group work, individual, theoretical, practical)

4. What kind of skills has the training instilled in you which was lacking in the Vocational Training Institution?

5. Do you find the occupational safety skills that you learnt in the Vocational Institute of any help to you here in the workplace?

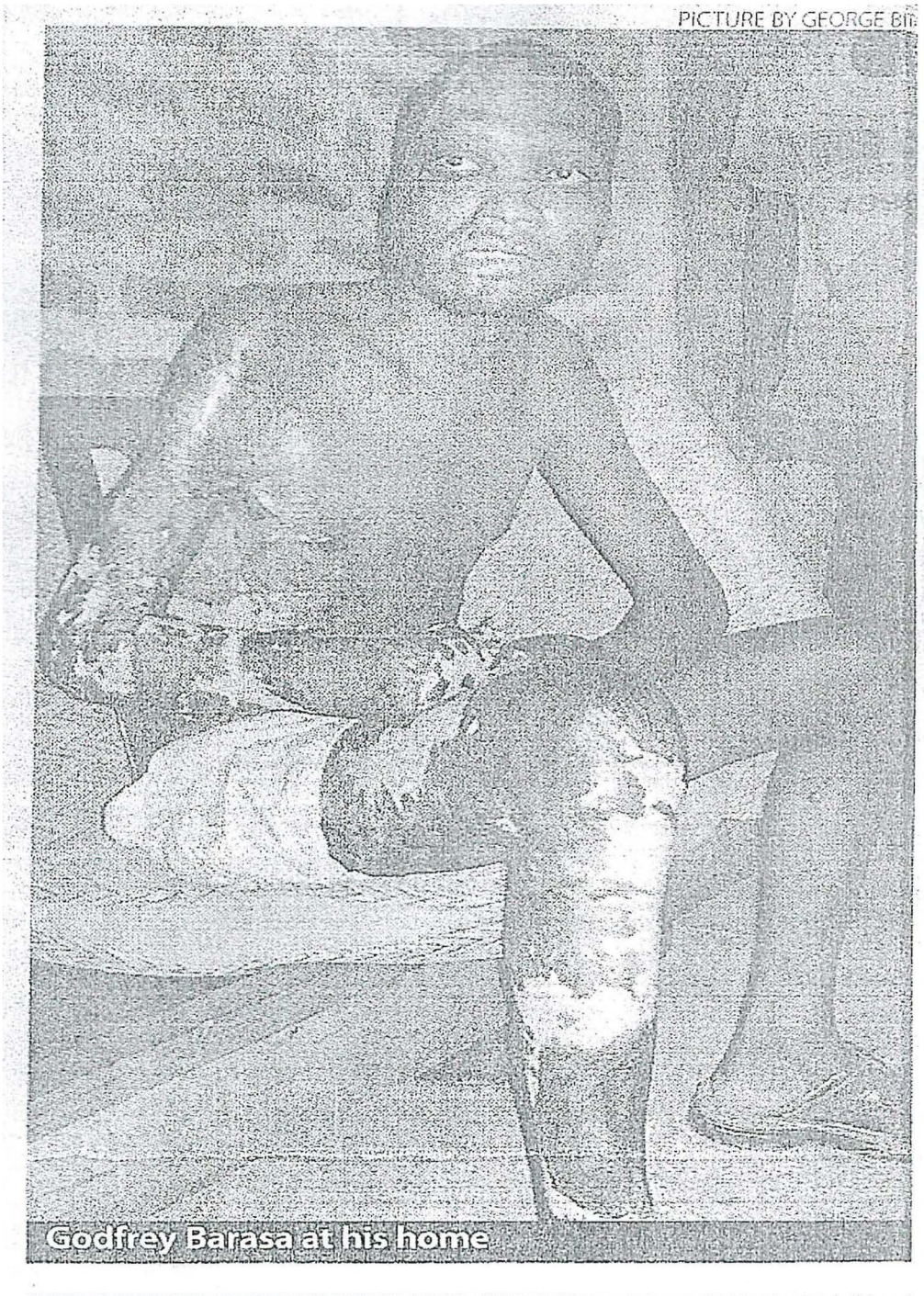
6. What do you think are some of the challenges to occupational safety training here at the workplace?

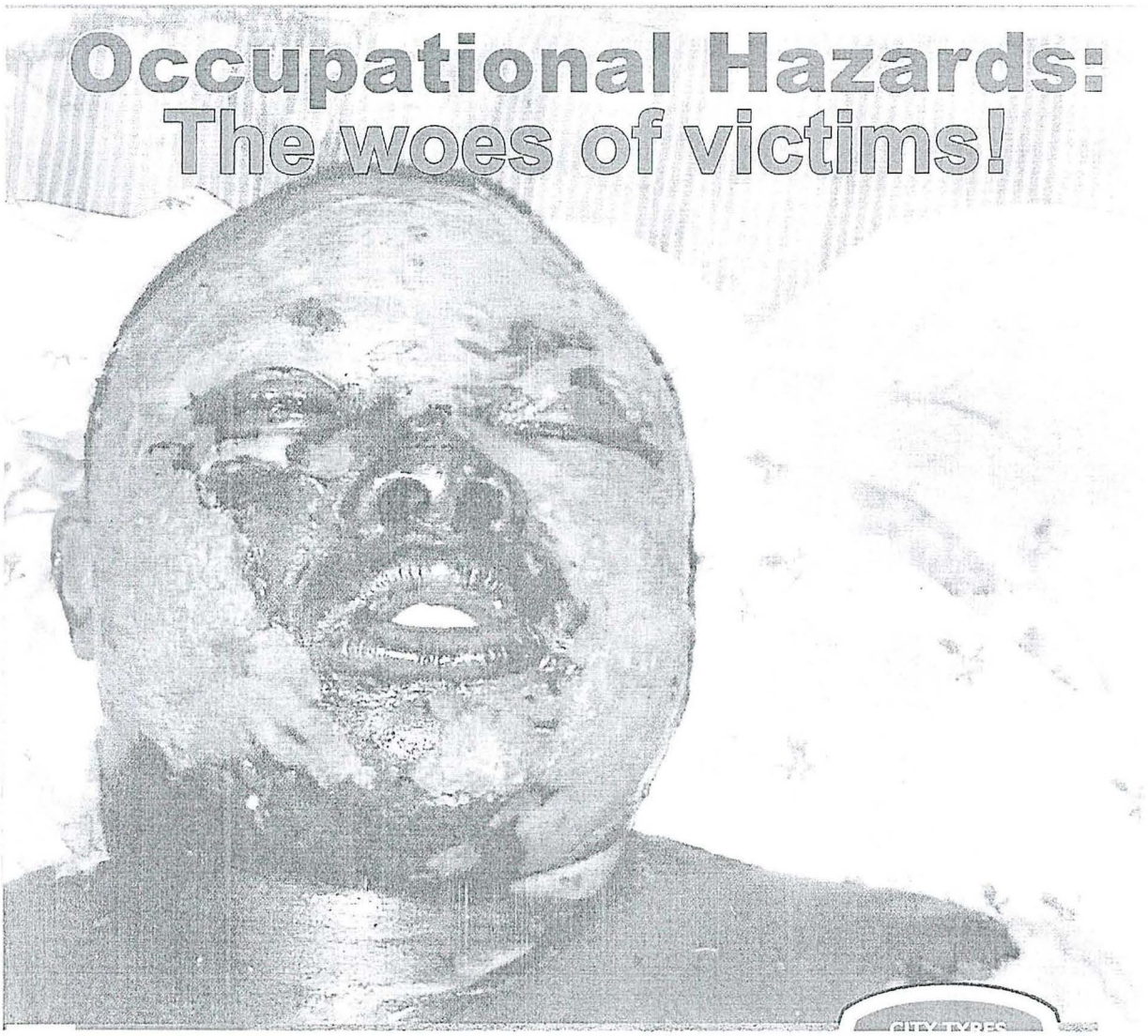
7. What suggestions can you make to improve occupational safety training here in the Workplace?

APPENDIX II: OBSERVATION CHECKLIST

Serial No	Items to be observed	Comment
1	Students, Instructors, Technicians, and newly recruited staff dressing code.	
2	Availability of safety equipment such as fire extinguishers, fume extractor fans etc.	
3	Condition of the machines i.e. Are they fitted with safety guards?	
4	Working space i.e. Is it enough?	
5	Condition of the working shelters i.e. Is it properly ventilated? , Does it have enough light? Etc.	
6	Use of safety equipment such as nose masks, ear muffs, helmets etc.	
7	Method of delivery of content/ training.	

Ex- factory worker in pain





Source: workers' voice, issue 3 JULY-SEPTEMBER 2012

KYAMBOGO UNIVERSITY

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Kyambogo University Graduate School

Date: 24th - April - 2012.

To:
The Works Manager,
Shumuk Aluminium Industries
Nakawa Industrial Area.

RE: LETTER OF INTRODUCTION

This is to introduce KINTU DENIS
Registration No. 2010/U/HD/226/MVP who is a student of Kyambogo University pursuing a Masters Degree in Vocational Pedagogy.

He/She intends to carry out a research on:
Occupational Safety training and practices in selected Vocational training Institutions and workplaces in Kampala, Uganda.

as partial fulfillment of the requirements for the award of the Degree in Masters of Vocational Pedagogy.

We therefore kindly request you to grant him/her permission to carry out this study in your organisation. Any assistance accorded to him/her shall be highly appreciated.

Thank you.

KYAMBOGO UNIVERSITY
Nakiwala
23 APR 2012
OFFICE OF THE DEAN
GRADUATE SCHOOL

Yours Faithfully,

Sr. Dr. F. Nakiwala
AG. DEAN, KYAMBOGO UNIVERSITY GRADUATE SCHOOL