UNIVERSITI PUTRA MALAYSIA

THE COMPARISON OF IMPLEMENTATION LEVEL OF OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT SYSTEM (OSHMS) AND ITS FACTORS BETWEEN CERTIFIED AND NON-CERTIFIED PUBLIC UNIVERSITIES

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ABSTRACT

THE COMPARISON OF IMPLEMENTATION LEVEL OF OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT SYSTEM (OSHMS) AND ITS FACTORS BETWEEN CERTIFIED AND NON-CERTIFIED PUBLIC UNIVERSITIES

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Introduction: The certifications of OSHMS have increasingly been applied by many industries and sectors but not as many in educational sectors. In Malaysia, there are only 3 out of 20 public universities are certified with OSHMS. In addition, there are only a few formal evaluation studies published worldwide and short of information on how this system works in educational sectors. **Objective:** The purpose of this study is to compare the implementation level of OSHMS and to identify the factors to implement OSHMS in certified and non-certified public universities in Malaysia. **Methodology:** To evaluate the implementation level an audit checklist was used and a semi-structured interview to have an in-depth understanding of how this system works and factors to implement OSHMS. Other alternative methods during Movement Control Orders (MCO) are an online questionnaire and video call interview. **Results and discussion:** The OSHMS achievement for certified university is level 10 (99.8%) while the non-certified university is level 10 (98.8%) which indicates good compliance with the elements of OSHMS. The in-depth interview indicated that the motivations to develop OSHMS are social responsibility and to eliminate and manage OSH risks. Both universities require external support in managing this system, especially in non-certified university as the OSH management have been established recently. The study also shows the problems in implementing OSHMS are lack of awareness on safety culture, lack of commitment in OSH, no incentives and excessive cost of obtaining and maintaining certification nonetheless there are also benefits that the certified university gained in implementing OSHMS over the years. **Conclusion:** This study highlights the factors for the implementation of OSHMS in the educational sector as guideline information in the future to create an intervention to promote educational sectors to implement OSHMS. This study able to integrate ideas on how this system being implemented in certified and non-certified public universities.

Keywords: Education sectors, management system, performance level, accreditation.

ABSTRAK

PERBANDINGAN TAHAP PELAKSANAAN SISTEM PENGURUSAN KESELAMATAN DAN KESIHATAN PEKERJAAN (OSHMS) DAN FAKTOR-FAKTORNYA ANTARA UNIVERSITI AWAM YANG DISAHKAN DAN TIDAK DISAHKAN

NUR FARHANA BINTI ABD SAMAD JAMALUDDIN

Pendahuluan: Pensijilan OSHMS semakin banyak diterapkan oleh banyak industri dan sektor tetapi tidak sebanyak di sektor pendidikan. Di Malaysia, hanya 3 dari 20 universiti awam yang diperakui dengan OSHMS. Tambahan pula, hanya ada beberapa kajian penilaian formal yang diterbitkan di seluruh dunia dan kekurangan maklumat mengenai bagaimana sistem ini berfungsi di sektor pendidikan. **Objektif:** Tujuan kajian ini adalah untuk membandingkan tahap pelaksanaan OSHMS dan mengenal pasti faktor-faktor untuk melaksanakan OSHMS di universiti awam yang diperakui dan tidak diperakui di Malaysia. **Metodologi:** Untuk menilai tahap pelaksanaan, senarai semak audit telah digunakan dan wawancara separa berstruktur untuk memiliki pemahaman mendalam tentang bagaimana sistem ini berfungsi dan faktor-faktor untuk melaksanakan OSHMS. Kaedah alternatif lain semasa Perintah Kawalan Pergerakan (MCO) adalah soal selidik dalam talian dan wawancara panggilan video. **Hasil dan perbincangan:** Pencapaian OSHMS untuk universiti yang diperakui adalah tahap 10 (99.8%) sementara universiti yang tidak diperakui adalah tahap 10 (98.8%) yang menunjukkan pematuhan yang baik terhadap elemen OSHMS. Wawancara dengan leboh mendalam menunjukkan bahawa motivasi untuk mengembangkan OSHMS adalah tanggungjawab sosial dan untuk menghilangkan dan mengurus risiko OSH. Kedua-dua universiti memerlukan sokongan luaran dalam menguruskan sistem ini, terutamanya di universiti yang tidak diperakui kerana pengurusan OSH telah ditubuhkan baru-baru ini. Kajian ini juga menunjukkan masalah dalam pelaksanaan OSHMS adalah kurangnya kesadaran mengenai budaya keselamatan, kurangnya komitmen dalam OSH, tidak ada insentif dan kos yang berlebihan untuk memperoleh dan mengekalkan sijil namun terdapat juga manfaat yang diperoleh universiti yang diperakui dalam melaksanakan OSHMS selama bertahun-tahun. **Kesimpulan:** Kajian ini menyoroti faktor-faktor untuk pelaksanaan OSHMS di sektor pendidikan sebagai maklumat panduan di masa depan untuk membuat intervensi untuk mempromosikan sektor pendidikan untuk melaksanakan OSHMS. Kajian ini dapat menyatukan idea bagaimana sistem ini dilaksanakan di universiti awam yang diperakui dan tidak diperakui.

Kata kunci: Sektor pendidikan, sistem pengurusan, tahap prestasi, akreditasi.

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LIST OF ABBREVIATIONS

OSHMS	Occupational Safety and Health Management System
DOSH	Department of Occupational Safety and Health
OSHMP	Occupational Safety and Health Master Plan
OSH	Occupational Safety and Health
OSHA	Occupational Safety and Health Act
QS	Quacquarelli Symonds
MyRA	Malaysia Research Assessment Instrument
SETARA	Rating System for Higher Education Institutions in Malaysia
My Quest	Malaysian Quality Evaluation System for Private Colleges
ILO	International Labour Organization
NGO	Non-government Organization
OHSAS	Occupational Health and Safety Assessment Series
BSI	British Standards Institution
PDCA	Plan, Do, Check, Act
MS	Malaysia Standards
UMP	University Malaysia Pahang
USIM	University Sains Islam Malaysia
MCO	Movement Control Order
PCIDA	Prevention and Control of Infectious Disease Act 1988
PA	Police Act 1967
COVID-19	Coronavirus Disease 2019

HIRARC	Hazard Identification, Risk Assessment and Risk Control
HIRAO	Hazard identification, Risk assessment and Opportunity
KPI	Key Performance Indicator
LEV	Local Exhaust Ventilation

CHAPTER 1

INTRODUCTION

1.1 Background

The Occupational Safety in Malaysia has started 141 years ago when Mr. William Givan was appointed as Machinery Inspector during the Steam Boiler Safety Era in 1878 to inspect the safety aspect of steam boilers in tin mines (Department of Occupational Safety and Health, DOSH). DOSH stated the evolution of safety in Malaysia continues and was classified into;

Machinery Safety Era – 1914 till 1952

Industrial Safety Era – 1953 till 1967

Industrial Safety and Hygiene – 1970 till 1994

Occupational Safety and Health Era – after 1994

OSHMP 15 Era

OSHMP 2020

The most current Malaysia's government initiatives and commitment to improving and enhance safety in Malaysia are the Occupational Safety and Health

Master Plan (OSHMP) 2020. This OSHMP 2020 is focusing on culturing the Safe and Healthy Work Culture among employers and employees with the implementation of responsibility and self-regulation principles in the work settings (DOSH). As stated by DOSH, there are improvements in the number and rate of workplace accidents based on the previous two strategic plans before which there are 51, 829 cases of industrial accidents in 2005 while in 2015 the number of accidents decreased to 38,753 cases.

In supporting the government's aim and vision in boosting the national occupational safety and health (OSH), the implementation of the Occupational Safety and Health Management System (OSHMS) in an organization may help in reducing the number of accidents and incidents in a workplace. Occupational Safety and Health Management System (OSHMS) is a set of interconnected and interrelated components of factors in health and safety to form and execute Occupational Safety and Health (OSH) policy and objectives, and to achieve those objectives (Awang, Baharuddin & Saliluddin, 2019). Evidence has shown that the implementation of OSHMS has decreased accident rate by 67% and the fatal accident rate by 10.3% during the period from 2006 to 2011 among the top 100 construction companies in South Korea (Seok et. al, 2013). However, to achieve the aim to reduce the number of accidents and incident rates do not depend on the implementation of OSHMS but the effort of all levels of an organization to thrive a conducive, safe and healthy culture.

In Malaysia, occupations in almost all sectors are covered in the Occupational Safety and Health Act (OSHA) 1994. In Schedule 1 of OSHA 1994, it has been stated that ten sectors that are obligated under this Act. One of the sectors is Public services and Statutory Authorities which include universities, colleges, schools, and

other educational sectors. Workers in educational sectors are not exempt from exposure to job tasks considered as high risks as many safety and health hazards are present in these sectors such as hazardous chemical in laboratories in universities and schools.

The numbers of students in universities and in turn employees are increasing every year and reports of injuries and accidents occurring in universities may not be common when compared to industrial sectors but this exists nevertheless. For instance, in Spain 4761 (0.4%) out of 1.2 million occupational injuries occurred among university staffs while in Germany 16,591 (0.66%) out of 2.5 million university workers were injured (Shalaw and Rahmawati, 2016). Among the methods to have a structured framework to manage OSH in organisations is by the implementation of Occupational Safety and Health Management System (OSHMS). Implementation of OSHMS in university can help to ensure all relevant occupational risks for all interested parties are properly managed. Evidence has shown that by accreditation of OSHMS in the workplace, accidents reductions were observed (Seok et. al, 2013).

It is postulated that by similarly implementing OSHMS accreditation in universities, safety and health improvements will be observed too. The reason why OSHMS implementation will improve OSH is that the main element of OSHMS is the assessment of all associated OSH risks that is exposed to all interested parties which brings a greater meaning than protection of workers only. Notwithstanding that element, programs which are suited and tailored to each organisation are implemented after taking account OSH objectives that needs to be achieved. As such, training and other programs which are focused to increase competencies of workers can be implemented according to job requirements and improvements in work

methods will be done. Unfortunately, although universities do have a system of work to comply with the requirements of section 15, of OSHA 1994; not many universities have proper implementation of OSHMS in their organisation.

Among the OSHMS structure currently available in Malaysia is OHSAS 1800:2007 or MS 1722: 2011. By 2021, the OSHMS structure will follow the ISO45001:2018. Finally, there are only a few public universities that are certified in OSHMS which is OHSAS 1800:2016. Although information on the benefits of OSHMS is known there are few public universities that are certified with OSHMS. In Malaysia, currently we have twenty numbers of public universities however the universities that are certified with OSHMS are only three universities which are University Malaysia Kelantan, University Malaysia Pahang and University Malaysia Sabah. This means that a percentage 15% of public universities in Malaysia accredited with OSHMS accreditation. In addition, there is a lack of studies regarding the formal evaluation studies published and deficit of information on how these system works in public universities regarding Occupational Safety and Health Management System (OSHMS) (Njeru, 2014).

1.2 Problem Statement

A study conducted by Subhani (2010) states that industrial sectors are the most familiar sectors for the implementation of OSHMS to be compared to the education sectors such as universities, colleges and also schools because most of the studies carry out in industries (Subhani, 2010). Educational sectors especially tertiary education sector are as important as any sector because this sector is growing and increasing sector which includes employers with extensively different organizational cultures while being exposed to high-risk activities such as chemicals and radiation

exposures and many more as per demand of research and teaching (K.M. Venables & S. Allender, 2006).

In spite of that, involvement of tertiary education sector in establishing OSHMS is not as encompassing as industrial sectors not only in Malaysia but in terms of global setting. Universities in Malaysia are now being veered to increase their capacity and capability as renown research and teaching entities following many benchmarks provided such as Quacquarelli Symonds (QS) World University ranking, Malaysia Research Assessment Instrument (MyRA) aiming to assess the level of activity in research development and commercialisation, Rating System for Higher Education Institutions in Malaysia (SETARA) to measure the performance of undergraduate teaching and learning in universities and My Quest (Malaysian Quality Evaluation System for Private Colleges) to evaluate private colleges in Malaysia in terms of the quality of students, programs, graduates, resources and governance. With increased research and teaching activities, requirements related occupational safety and health will require a closer analysis to ensure risks to workers, students and all stakeholders are managed well. Implementation of OSHMS and subsequent certification will assist in ensuring risks to safety and health are managed in a structured manner and are continuously improved.

Data on occupational incidents in universities in Malaysia is available albeit limited. For example, Shalaw and Rahmawati (2016) reported that work-related injuries in Universiti Putra Malaysia are the highest compared to universities in United Kingdom, Spain, Germany and United Kingdom. Examples of the work-related injuries are strained and sprain injuries, fall and slip, wounds/superficial, fractures and others. This may not represent the whole of Malaysian universities but this does reflect data in a public university without any OSHMS accreditation.

Statistically, there are a low number of public universities with OSHMS accreditation in Malaysia and this includes only three public universities which are University Malaysia Kelantan, University Malaysia Pahang and University Malaysia Sabah. This means that a percentage 15% of public universities in Malaysia accredited with OSHMS accreditation. Among the OSHMS structure currently available in Malaysia is OHSAS 1800:2007 or MS 1722: 2011. By 2021, the OSHMS structure will follow the ISO45001:2018.

Although information on the importance of OSHMS is known there is still low number of public universities that are certified with OSHMS. In addition, there is a lack of studies regarding the formal evaluation studies published and deficit of information on how these system works in public universities regarding Occupational Safety and Health Management System (OSHMS) (Njeru, 2014). There are also many underlying factors that contribute to the implementation of OSHMS in public universities that must be discovered as this will affect to the health and safety of the future employers, employees and other stakeholders in the universities. As such this study will evaluate the OSHMS performance of representative accredited and non-accredited university and factors related to how OSHMS are supported in its implementation will be elucidated.

1.3 Study Justification

This study will look on the performance level of OSHMS for public universities as a benchmark to compare with non-accredited public university. With the available data and the evaluation on the implementation level OSHMS; this study will carry on with advice the OSH management of public universities on lack of the current system that need to be addressed before or during the implementation of OSHMS. The study will also create awareness among the OSH management of educational sectors on the need of health and safety management system that able to increase awareness and knowledge to hinder from work-related accidents or injuries. In addition, this study able to integrate ideas and share on how this system being implement between certified and non-certified public universities.

The benefit of this study is it can assist policy makers and the OSH experts, management teams, OSHMS developers and implementers as they look for the factors on how to implement OSHMS in a way that will be useful, time and cost effective. This study also able to find the underlying contributing factors on the implementation of OSHMS in public universities as this result able to be used as guideline information in the future to create intervention to promote educational sectors in implement OSHMS. In the other hand, this study also encourage researchers to do more studies on the implementation of OSHMS in educational sectors and the result will be the baseline for the future researches for the implementation level of OSHMS in public universities.

1.4 Conceptual Framework

There are many factors that can influence the implementation level of OSHMS in an organization and these factors can be divided into few groups namely (i) motivation for developing OSHMS, (ii) external support needed to implement OSHMS, (iii) problems to implement OSHMS, (iv) effectiveness of implementing OSHMS and (v) the elements of continual improvement of OSHMS (Seok et al., 2013)

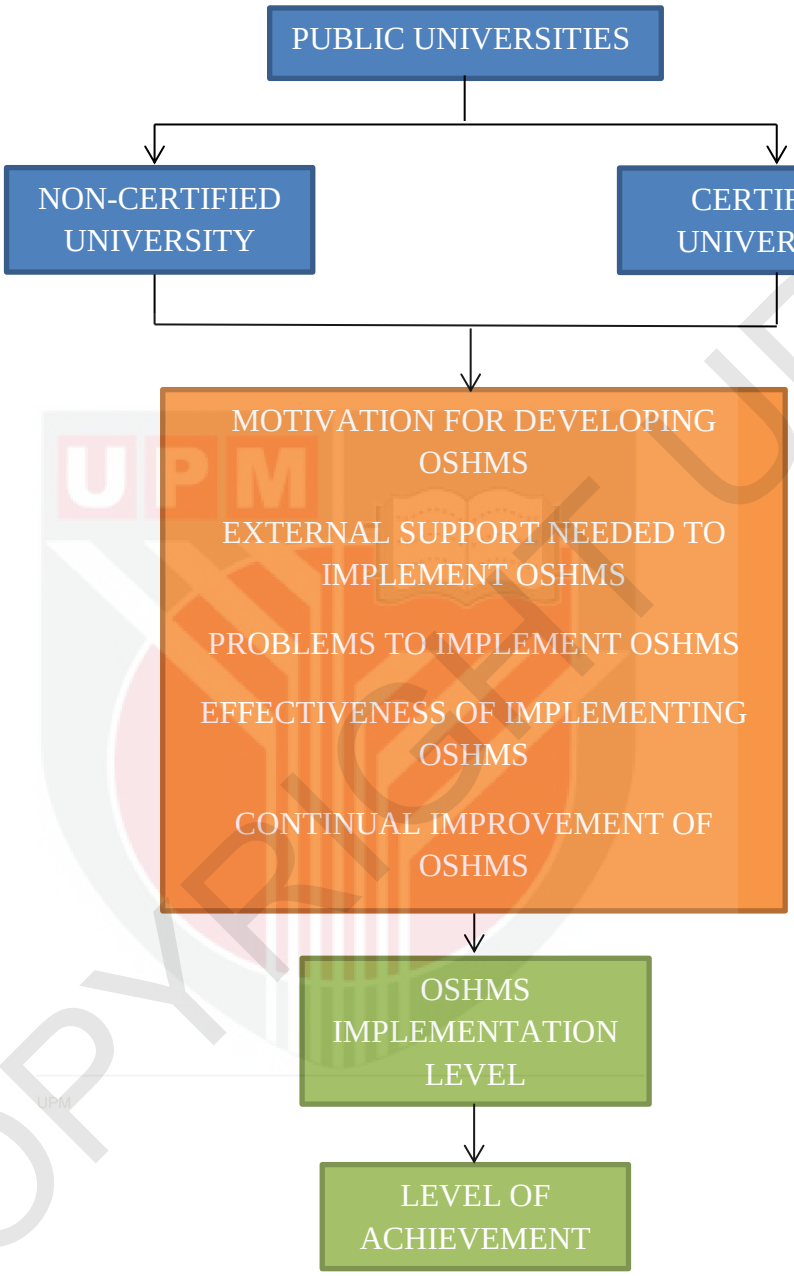
The first factor is motivation for developing OSHMS which is a great significance or value to identify the factors that influence the education sectors to develop their own OSHMS. Motivation is a desire or willingness to do something or the feeling of enthusiasm as stated by (Noradila, 2014) motivation is the driving force behind the way a person act.

The second factor is external support needed to implement OSHMS which consist of many factors for example (i) policy, (ii) risk assessment, (iii) legal compliance, (iv) goals and plans, (v) organization and responsibility, (vi) documentation, (vii) implementation management, (ix) inspection and correction, (x) audit and (xi) management review. These factors are crucial for the implementation of OSHMS as it is the main components to comply with current law and regulations and to establish the basic occupational safety and health management system (Noradila, 2014).

The third factor is problems to implement OSHMS which is common in any organization to start in implementing OSHMS. There could be many challenges, barriers, complication and difficulties that are faced in execution of safety in

education sectors which could be differ to other sectors. Apart from that, the last factor which is effectiveness of OSHMS in education sectors is also important as this can influence this sector in implementing OSHMS in their organization.

Conceptual Framework



INDEPENDENT VARIABLE

DEPENDENT VARIABLE

1.5 Objectives

1.5.1 General Objectives

1. To compare the implementation level of Occupational Safety and Health Management System (OSHMS) and its factor between certified and non-certified public universities in Malaysia.

1.5.2 Specific Objectives

1. To determine the sociodemographic characteristics of OSH staffs in certified and non-certified public universities.
2. To determine the implementation level of Occupational Safety and Health Management System (OSHMS) between certified and non-certified public universities.
3. To compare the implementation of Occupational Safety and Health Management System (OSHMS) mean level between certified and non-certified public universities.
4. To determine factors contributing to implementation of OSHMS in the universities.

1.6 Research Questions

1. Is there any difference in the implementation level of Occupational Safety and Health Management System (OSHMS) between certified and non-certified public universities?
2. Does the level of performance of Occupational Safety and Health Management System (OSHMS) in certified public university is higher than non-certified public universities?

3. What are the factors contributing to the implementation of OSHMS in public universities?

CHAPTER 2

LITERATURE REVIEW

2.1 Occupational Safety and Health Management System

International Labour Organization (ILO) (2001) states that Occupational Safety and Health Management System (OSHMS) is a discipline dealing with the protection and promotion of the health of workers as well as the prevention of work-related injuries and diseases. According to (Bakri A., Misnan M.S., Mohamad M.A.H. & Zin R.M., 2006) it states that in an organization OSHMS is a fundamental part of the overall management system which facilitates the management of the OSH risks associated with the business of the organization, surroundings, and conditions that affect employees and other related persons at a workplace. Besides, implementing OSHMS could improve OSH performance including promoting safety culture in the workplace by having a management system that is a must to control risk primarily in Occupational Safety and Health (OSH) related activities (Awang N., Baharudin M.R. & Saliluddin S.M., 2019).

International Labour Organisation (ILO) highlighted OSHMS is a way to improve the safety culture in organizations by implementing an OHS management system and at the same time comply with OHS regulations (DIAS, 2005). ILO also mentioned OSHMS is commonly used in the process of making decisions in business and unaware of the activities in our daily life such as purchasing equipment or simply buying new furniture and the extent of business (ILO, 2001). Subhani, M,G.(2010) explained the idea of OHSMS has been developed and adopted by

several sectors including non-government organizations (NGOs), public and private by applying the available international standards and guidelines for OSHMS which are OHSAS 18001 (2007), BS 8800 (2004) and ILO-OSH (2001) while in Malaysia we also have MS 1722 (2011).

2.2 OHSAS 18001:2007

In Malaysia, there are 2 standards that are used widely across the country which are the national standard, MS 1722:2011 a Malaysian standard that provides requirement on OSHMS and basis for the development OSH system in an organization. On the other hand, an association standard that is recognised internationally, OHSAS 18001:2007 a standard that developed by the OHSAS team, an associations and government agencies to assist organizations in establishing a management system to manage and control their health and safety risks and improving their OH&S performance (Department of Standards Malaysia).

The first Guide to occupational health and safety management system was the development of BS 8800:1996 but due to insufficient agreement between UK national standards, European standard and international standards it has led to the development of this Occupational Health and Safety Assessment Series (OHSAS) Specification, OHSAS 18001:1999 as stated by British Standards Institution (BSI, 1999). As stated by OHSAS Project Group (2007), OHSAS18001:1999 was revised in 2007 and currently recognised as OHSAS 18001:2007 (Abidin, E, Z., & Irniza, R., 2015). Vinodhkumar and Bhasi (2011) explain that OHSAS aimed to support and help to systemize the management of risk factors and the promotion of good working conditions which encourage for OHSAS 18001 certification worldwide especially for

organizations that require special focus on the safety of work environment and employees such as large chemical and process industrial organizations.

Fernández-Muñiz et al., (2012b) state that implementing OHSAS 18001 standards enhance working conditions, decrease the number of personal injuries and damage of material which also protect both corporate reputation and human capital. In conjunction, it can also be a deliberative mechanism for firms to be a competitive and to establish a strong position in the global market (Fernández-Muñiz et al., 2012b). According to Abolfazl Ghahramani (2016), OHSAS 18001 standard are based on Plan, Do, Check, Act (PDCA) cycle requirement, and this feature makes it more compatible with other international standards, e.g., ISO 9001 and ISO 14001 (De Oliveira, 2013). The Deming Cycle is a process that was designed in the 1950s to monitor the business performance on a continual basis based on the principle of the "Plan-Do-Check-Act" Deming Cycle (PDCA) (ILO, 2001). The application of PDCA Cycle is as follow;

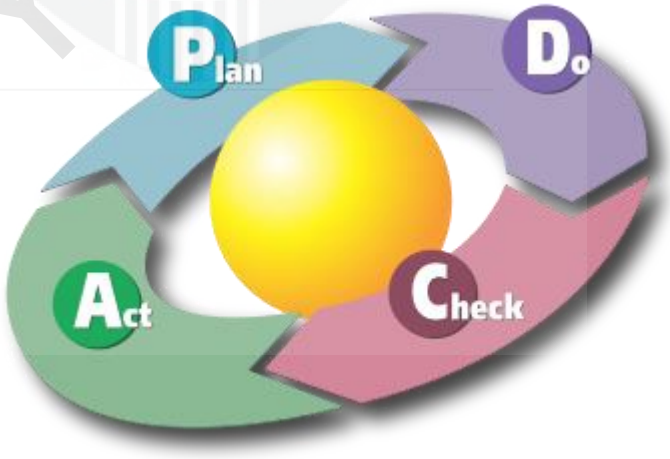


Figure 1: PDCA Deming Cycle (Adapted from Google)

Plan - Involves the setting of an OSH policy, planning including the allocation of resources, provision of skills and organisation of the system, hazard identification and risk assessment.

Do – Step refers to actual implementation and operation of the OSH program

Check – Step is devoted to measuring both the active and reactive performance of the programme

Act – Step closes the cycle with a review of the system in the context of continual improvement and the priming of the system for the next cycle

2.3 MS 1722:2011

According to Abidin, E, Z. & Irniza, R. (2015) it state that MS requirements is a standard that serve to develop a sustainable safety and health culture in an organisation. MS 1722:2011 is a Malaysian Standard that was develop based on the International Labour Organization's standard, ILO-OSH MS2001 (DOSH,2016). It also acts as a requirement on OSHMS and becomes the fundamental for the development of OSH system in an organization. Based on MS1722:2011, the Malaysian Standards (MS) was developed by committees' representative from the consumers, producers, users and others related parties. These standards are also aligned to or are adopted by the international standards and were approved as Malaysian Standard by the Standards of Malaysia Act 1996 [Act 549] (MS1722:2011).

As stated by DOSH (2016), there has been increasing of 8.4% in the development of Malaysia Standards (MS) since Malaysia OSH Profile 2009. Malaysia OSH Profile is a National OSH Promotional Activities in improving OSH and working

conditions at national and regional level (DOSH). In consequence, as of 31st of August 2016, there has been a development of 6,067 of MS in diverse fields as for Occupational Safety and Health there are 227 of Malaysian Standard was developed. Out of 227 Malaysian Standards related to OSH, 154 are remained identical while 4 standards were modified in order to adapt to the use of the country (DOSH). Figure 2 shows the cumulative number of MS developed from year 2008 to 2016.

Sector	CUMULATIVE MS DEVELOPED	ALIGNED MS	
		IDENTICAL	MODIFIED
Occupational Safety And Health	227	154	4

Table 1: Malaysian Standard (MS) Status as of 31st August 2016 (Adapted from: Standard Department Malaysia (DOSH))

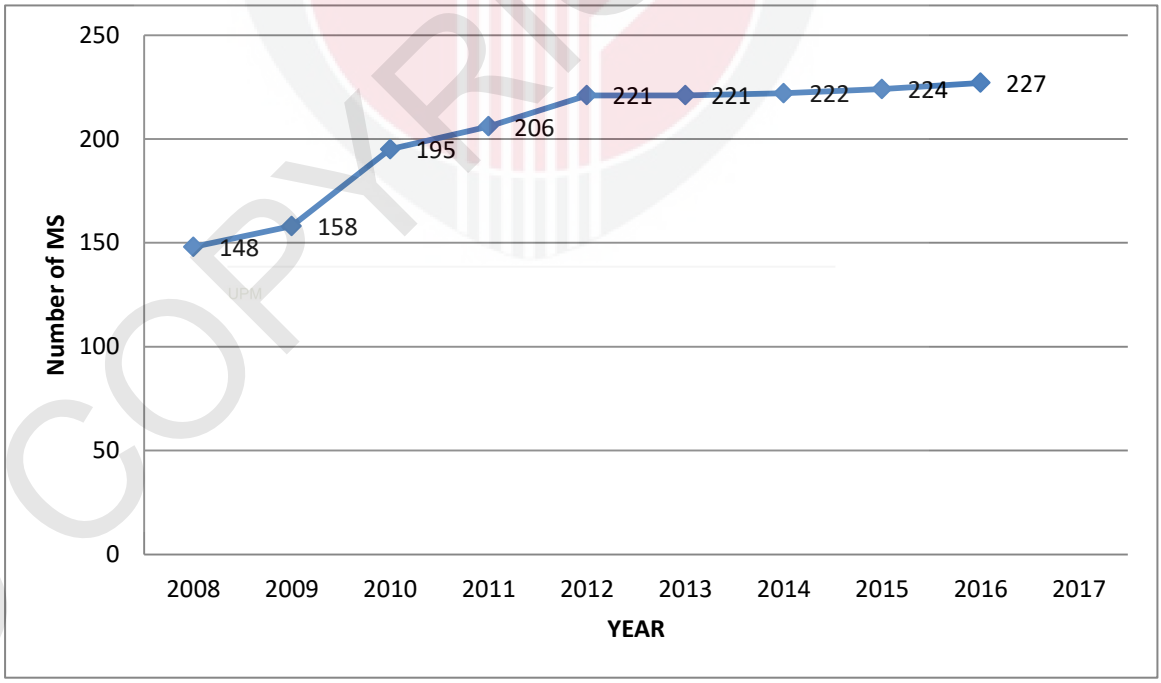


Figure 2: Number of Occupational Safety and Health Malaysian Standards (MS) developed from 2008 until 2016 (Adapted from: Standard Department Malaysia (DOSH))

According to DOSH, the detailed number of certified scopes and organizations for OSH are:

i. OHSAS 18001:2007 – 913 (scopes), 839 (organizations)

ii. MS 1722 Part 1:2005 – 203 (scopes), 189 (organizations)

Based on DOSH Annual Report in 2015, there are 1356 companies that are recorded that complied with OSHMS and 5 Certification Bodies are accredited by Standards Malaysia to issue MS 1722 certification. This shows the effort and interest by Malaysian industries in supporting the national standards by complying and be certified by the standards. In order to continue the effort in changing into a safe and healthy work culture, continual improvement cycle of MS 1722:2011 able to show the commitment and leadership of the employer to OSH activities (MS 1722:2011). As stated by Abidin, E, Z. & Irniza, R. (2015) the main elements of OHSAS and MS are made up of five interrelating main elements and have been describe as elements in a cyclic form. The main elements act as a principle of continual improvement that was visualized in a cyclic form that illustrate the OSH management system in an iterative process that enhance OSHMS to achieve the OSH performance mentioned by (Abidin, E, Z. & Irniza, R. 2015). Figure 3 shows the main elements in MS:

Figure 3: The main elements of MS1722:2011 for continual improvement (Adapted from: MS1722:2011)

Figure 3 shows the main elements in MS 1722:2011 adapted from the Guidelines on Occupational Safety and Health Management Systems (ILO-OSH, 2001):

i. Policy

- Establishment of policy in consultation with workers and representatives
- Worker participation

ii. Organizing

- Responsibility and accountability
- Competence and training

- Occupational safety and health management system documentation
- Communication

iii. Planning and implementation

- Initial review
- System planning development and implementation
- Occupational safety and health objectives
- Hazard prevention

iv. Evaluation

- Performance monitoring and measurement
- Investigation of work-related injuries, ill health, diseases and incidents and their impact on safety and health performance
- Audit
- Management review

v. Action for improvement

- Preventive and corrective action
- Continual improvement

2.4 Safety Issues in Education Sectors

As stated in the Occupational Safety and Health Act 1994 (Act 514), under Schedule 1 public sector and services such as public schools, universities and hospitals are the sectors that are required in this act which is an important sector in protecting the workers from hazard and providing a safe work environment. The statistics of Occupational Accidents reported in Malaysia by Sector from 2015 until

2018 by DOSH illustrated that the number of the accidents without permanent disabilities and permanent disabilities decreases while the number of fatalities increases in the year 2018 for services sector and statutory bodies. Table 2 shows the statistics report by DOSH in that sector.

Table 2: The statistics report by DOSH in that services sector and statutory bodies

Year	Fatal	Without permanent disabilities	Permanent disabilities
2015	6	101	3
2016	0	31	1
2017	2	64	0
2018	9	48	1

(Adapted from: DOSH, 2018)

Makhtar et al., (2018) mentioned that even though that DOSH statistics shows the number of occupational accidents is lower to be compared to other sectors but newspaper reports states there are many accident cases occurred in education sector indicates the level of safety culture in educational sector is still low. Table 3 shows a summary of newspaper report on types of accidents occurred in school environment from 2015 to end of 2016 by (Makhtar N.K. et al., 2018).

Table 3: Types of accidents occurred in Malaysian school from 2015 to 2016

Type of accidents occur in Malaysia	No. of cases
Crushed by heavy objects	11

Pierced by share objects	3
Stung by venomous animals	1
Chemicals and laboratory equipment were damaged	8
Struck by vehicle	1
Fall from the building	7
Perform activity	2
Total	33

(Adapted from: Makhtar et al., 2018)

Oner et al., (2017) state that vocational education pupils are limited on the knowledge of how to prevent health risks at work and lacked a systematic way to approach hazard control (Makhtar et al.,). According to (Wu et al., 2006) cases of injuries and deaths of students and instructor in universities may occur (Subhani, 2010). Wu et al., (2006) claims the rising issue from a survey of 100 universities and colleges in Taiwan are the accidents in laboratories. As claimed by (Wu et al., 2006) *"organizational factors and individual factors*" are influencing the working environment of university where the efficiency depends on the communication and performance between faculty, staff and principal in achieving their expectations of society and individuals (Subhani, 2010).

2.5 Factors in Implementing OSHMS

In a study that was conducted at public universities in Kenya by (K. Njeru, 2014) the implementation level of OSHMS was identified using self-administered questionnaires based on the elements of OSHMS which are the Occupational Safety

and Health Policy, Worker Participation, Organization and Communication, Planning and Implementation and Monitoring and Evaluation. Challenges that affect the implementation level OSHMS in the public universities in Kenya were found as the following; no operational OSH policy, absence of publicized and written OSH policy, uncoordinated safety and health committee, planning and implementation was not done in a structured manner. Additionally, 88% of the employees did not attend safety and health training.

According to Schmidt and colleagues (2017) there are three main challenges of relationship and collaboration between public-sector organizations and providers to ensure OSH performance is maintained. The first challenge is the impact of political governance due to different forms of ownership and financial framework. Second challenge is a lack of adequate implementation and collaboration despite establish OSHMS structures this is result of lack limited flow of information on occupational health and safety issues and interaction with safety committees. Lastly, the role and impact of the HR Department may adversely affect OSHMS without adequate knowledge on OSH and the utilization of preventive services and support of an OSH provider.

The point of view of the challenges from employers and managers must be assessed as they are responsible in providing and creating a safe work environment. Tappura, Syvanen & Saarela (2014) found that firstly, increase of economic and efficiency pressures and lack of resources is the most significant factors that decrease the abilities of manager to design and administer work. Next, the employers find it difficult in supporting and managing the workload of employees, hence this will disallow employers to evaluate and prioritize the workload of workers thus a safe work environment will not provide (Tappura, Syvanen & Saarela, 2014). A study

that was conducted by K. Njeru (2014) stated that the factors that affect the implementation of OSHMS in universities in Kenya are low level of safety and health awareness and safety culture among the workers, poor compliance with their OSH legal requirements which is Occupational Safety and Health 2007 Act, lack of management commitment and failure to operationalize the OSH policy.

There are several factors that influenced an organization to implement OSHMS and factors of OSHMS performance as stated in a study by Subhani (2010) which was conducted in University of Gavle. The first factor is the management commitment, as stated by Fernandex-Muniz, et al. (2008) the reason behind weak management commitment is a perception about expenditure of preventive measures. The second factor is the roles of health and safety committee the work environment are agreed by both parties in safety committee and apart of planning and monitoring of health and issues. Occupational health services have an important role in the implementation of OSHMS which facilitate both employers and employees in OSH.

Next, promotion of OSH can create awareness among employees on the importance of OSH and improve of OSH activities in a workplace (Subhani, 2010). Apart from that, Gaceri (2015) found that employee participation influence the implementation of health and safety in supermarkets in Kenya and lack training on health and safety measures of employees also shows an impact on their performance and productivity. Lastly is the implementation of health and safety measure plays an important role in reducing the occurrence of accident in supermarket (Gaceri, 2015).

CHAPTER 3

METHODOLOGY

3.1 Study Design

This is a mixed-method study employing the methods of cross-sectional study and qualitative study to determine the implementation level of Occupational Safety and Health Management System (OSHMS) between certified and non-certified public universities in Malaysia. The cross-sectional nature of study is for the purpose of collecting data on OSHMS implementation among OSH representatives in Malaysian universities at a given point of time. Data collection was performed between January to May, 2020.

3.2 Study Location

Study will be conduct at two local public universities. University Malaysia Pahang (UMP) located in Pekan, Pahang. In UMP there are seven faculties which are Faculty of Chemical and Process Engineering, Faculty of Civil Engineering Technology, Faculty of Computing, Faculty of Electrical and Electronic Engineering Technology, Faculty Industrial Sciences & Technology, Faculty of Manufacturing and Mechatronic Engineering Technology, Faculty of Industrial Management and Faculty of Mechanical and Automotive Engineering Technology.

The other public university is University Sains Islam Malaysia (USIM) which located in Nilai, Negeri Sembilan. In USIM there are five faculties which are Fakulti

Pengajian Quran & Sunnah, Fakulti Syariah & Undang-Undang, Fakulti Ekonomi Muamalat and Fakulti Sains & Teknologi.

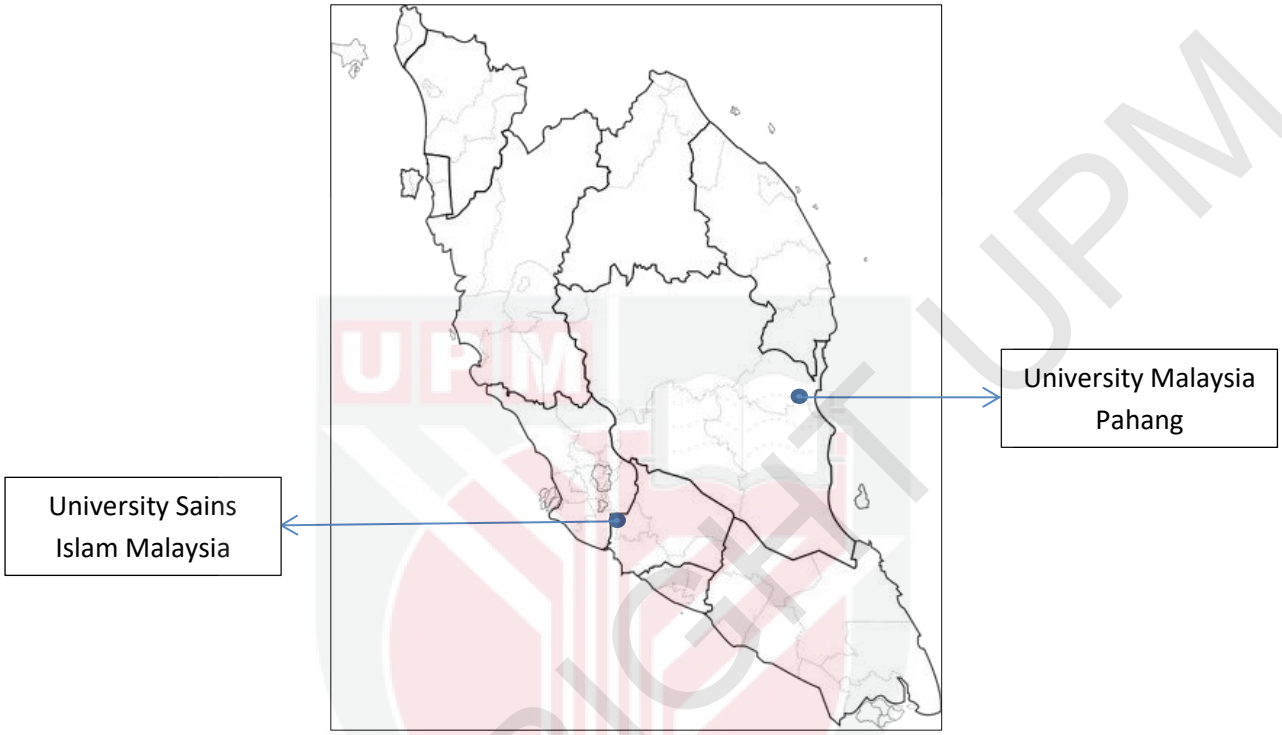


Figure 4: Location of University Malaysia Pahang and University Sains Islam Malaysia

3.3 Sampling

3.3.1 Study Population

This study is focusing among safety and health committee in both universities.

3.3.2 Sampling Frame

List name of health and safety committee in both universities will be obtained from the staff directory and universities website of both universities.

3.3.3 Sampling Unit

Inclusive Criteria:

Safety and Health Committee

i. Workers who are responsible for safety and health of the respective universities

Exclusive Criteria:

Safety and Health Committee

i. Workers who have the knowledge on safety and health and implementation of OSHMS

3.3.4 Sampling Method

A purposive sampling method is used in this study focusing on particular characteristics of a population that are of interest with hope that they will be more readily able to provide the best to answer the research question. This is also because there is lack of information on the certification of OSHMS in public universities in Malaysia.

3.3.5 Sample Size

Sample size calculation is not necessary in this study due to study population only involve the health and safety committee by both universities.

Health and Safety Committee in UMP

Table 4: Safety Committee in UMP

No.	Position	Numbers
1.	Chairman	1
2.	Secretary	1
3.	Employer Representative	11
4.	Employee Representative	7
5.	**Total**	**20**

(Adapted from: https://oshmo.ump.edu.my/index.php/en/info/university-level**)**

Health and Safety Committee in USIM

Table 5: Safety Committee in USIM

No.	Position	Numbers
1.	Chairman	1
2.	Secretary	1
3.	Employer Representative	15
4.	Employee Representative	15
5.	**Total**	**32**

3.4 Data Collection and Study Instrumentations

This study will consist of two types of data collection at different stages which are quantitative method and qualitative method. The quantitative research will

use the checklist method while the qualitative research will use the semi-structured interview. Due to few impediments such as Movement Control Order (MCO) under the Prevention and Control of Infectious Disease Act 1988 (PCIDA) and the Police Act 1967 (PA) because of the Covid-19 outbreak online questionnaire and virtual interview also will be used as a method for this study.

3.4.1 Checklist

The checklist will be used to identify the implementation level of OSHMS in certified and non-certified public universities in Malaysia. An in-depth analysis of the OSHMS will be done in collaboration with the Safety and Health management team. This Occupational Safety Health Management System Audit Checklist and software is developed from MS 1722:2011 to complement the OSHMS Guidelines. The OSHMS comprises of five elements, A) policy, B) Organizing, C) Planning and Implementation, D) Evaluation, and E) Action for Improvement, and 16 measures. A total of 225 OSH indicators have been developed to evaluate the 16 measures (Table 6). Each of the indicators in the audit checklist is to be rated from 0 to 4, with each of the rating representing amount of compliance to the requirement or expectation of the indicators.

The rating scheme is as shown in Table 7. When assigning the rating, the auditor is to consider the scope and breadth of implementation and the results achieved. To promote continual improvement, a system of levels of achievement has been incorporated. The final score and levels of OSH achievement in the enterprise are as shown in Table 8. The methods to use this checklist are; 1) Allocate rating according to Table 7 for each indicator, 2) Sum up the score at the bottom of the element and 3) Identify the level of achievement based on Table 8.

Table 6: Total Number of Indicators by Elements and Measures (Adapted from: MS1722:2011 Audit Checklist)

Element	Measure	No. of Indicator
A	Policy	
	A1.OSH	15
	Aii. Worker Participation…….....	14
	Total	29
B	Organizing	
	Bi. Responsibility and Accountability…….	20
	Bii. Competency and Training……..	14
	Biii. Documentation & Record…….	18
	Biv. Communication……	7
	Total	59
C	Planning and Implementation	
	Ci Initial Review…….	12
	Cii Syetem Objectives ……..	9
	Ciii System Planning, Development and Implementation…	9
C	Civ Hazard Prevention	
	Civ.a General……..	10
	Civ.b Management of Change…….	7
	Civ.c Emergency Prevention, Preparedness and Response…….	12
	Civ.d Procurement…….	3
	Civ.e Contracting……	8
	Total	70
D	Evaluation	
	Di Performance Monitoring and Measurement……	20
	Dii Accident / Injury Investigation & Reporting…….	7
	Diii	11
	Div Management Review……..	13
	Total	51
E	Action for Improvement	
	Ei Preventive and Corrective Action…….	5
	Eii Continual Improvement……..	11
	Total	16
	Grand Total	225

Table 7: OSH Indicator Rating

4	Basically **all** of our people or activities meet the stated criteria or their intent with excellent results achieved	75 – 100%
3	**Most** of our people or activities meet the criteria or their intent with good results	51 – 74%
2	About **half** of our people or activities meet the criteria or their intent with positive result	50%
1	**Some or a few** of our people or activities meet the criteria or their intent with a few positive results	1 – 49%
0	**None** of our people or activities meet the criteria and no positive results are evident	0%

Table 8: Levels of Achievement of OSH-MS by score

Level	Score
Level 10	90-100
Level 9	80-89
Level 8	70-79
Level 7	60-69
Level 6	50-59
Level 5	40-49
Level 4	30-39
Level 3	20-29
Level 2	10-19
Level 1	0-9

3.4.2 Semi-structured Interview

Semi-structured interview session will be performed among the occupational health and safety (OHS) committee at their respective university to derive the qualitative data from the members that are more informed about the happenings in the safety issues in the university. The members will be purposively chosen focusing on history of OSH participation in the population that are of interest with expectation that they will be able to provide the best answer to the research question. Face to face interviews will be scheduled with the respondents to explore the factors that influence the implementation of OSHMS in public universities.

A semi-structured interview protocol has been developed in guiding the process of the interview and to enable an in-depth understanding of the factors that influence the implementation of OSHMS in public universities to be elucidated. The semi-structured interview protocol will consist of four parts which are background of work, Occupational Safety and Health Management System (OSHMS), the main elements of OSHMS which also reflects the score of the implementation of OSHMS in the university and the perspective of employer or employee on OSHMS. The

interview will include the usage of audio recorder brand Panasonic and will be transcribed. The transcription will then be analysed for the main key points from the interview.

3.4.3 Online questionnaire

To compensate the method of face-to-face interview if it was not able to be carried out, online interview questionnaire will then be used. The questions will be constructed and modified based on the semi-structured interview protocol by using the Google Form application. The questionnaire will be sent to the OSH management person-in-charge in the respective university then will be distributed by the management. The questionnaire will be used to get as much responses from the OSH committee if scheduled face-to-face interview with the OSH committee was not an option due to any constraints.

3.4.4 Video call or phone call interview

To supplement the method of online interview questionnaire, a video or phone call interview will be conducted to compensate the face-to-face interview session with the respondents. The interview will be based on the answers from the questionnaire to get an in-depth understanding on the factors that influence the implementation of OSHMS in the respective university.

Methodology Flowchart

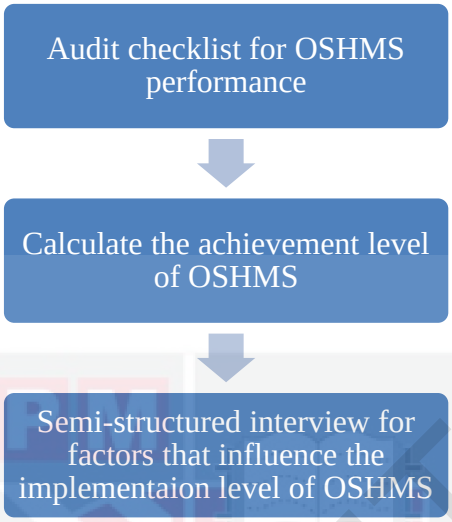


Figure 5: Methodology flowchart

Alternative method due to Movement Control Order (MCO)

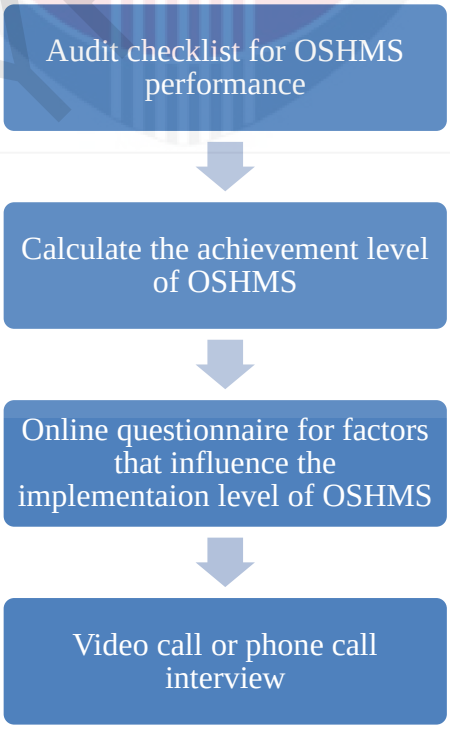


Figure 6: Methodology flowchart during MCO

3.4.5 Statistical Analysis

Univariate Analysis

No.	Specific Objectives	Data Analysis
1.	To determine the sociodemographic characteristics of safety committee in accredited and non-accredited public universities	Descriptive analysis
2.	To determine the implementation level of Occupational Safety and Health Management System (OSHMS) between certified and non-certified public universities	Descriptive analysis
3.	To compare the implementation level of Occupational Safety and Health Management System (OSHMS) between certified and non-certified public universities	Descriptive analysis
4.	To determine the factors that influence the implementation of Occupational Safety and Health Management System (OSHMS) in public universities	Descriptive analysis

3.5 Ethical Consideration

Research Ethics for this study will only be performed once approved by ethical committee of Human study of University Putra Malaysia. This research will be conducted on voluntary basis where all respondents will be given briefings on the background of the study and how the study will be conducted. The respondents

interested to participate in this study will be asked to give their written consent using an agreement form.

CHAPTER 4

RESULTS

4.1 Sociodemographic information

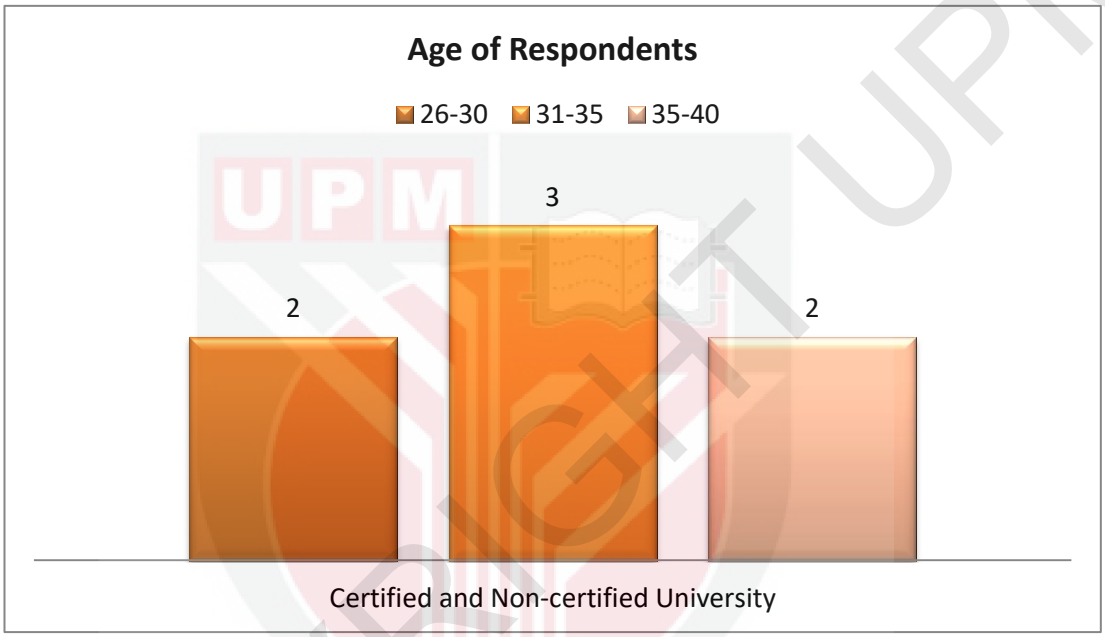


Figure 7: Summary of respondent's age category

Two of the respondents are in the age range of thirty-five years old to forty years old while other three respondents are in the age range of thirty-one years old to thirty-five years old and two respondents is in the age range between twenty-six years old to thirty years old.

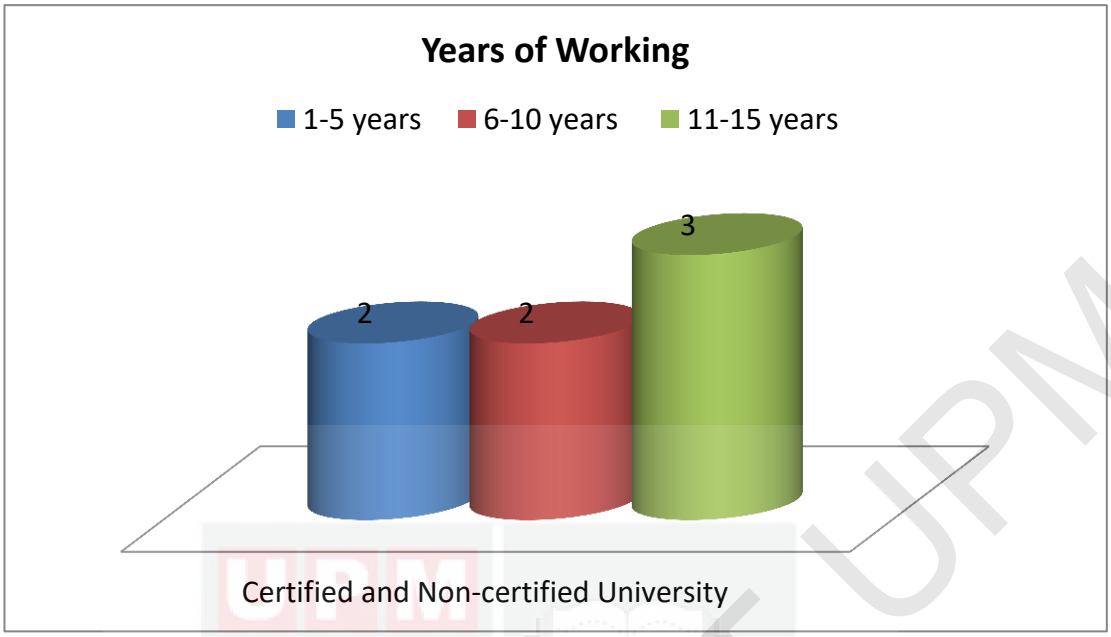


Figure 8: Summary of respondent's years of working

Two employees with 1-5 years of work experience while two employees with 6-10 years of work experience and the rest with 11-15 years of work experience in the university

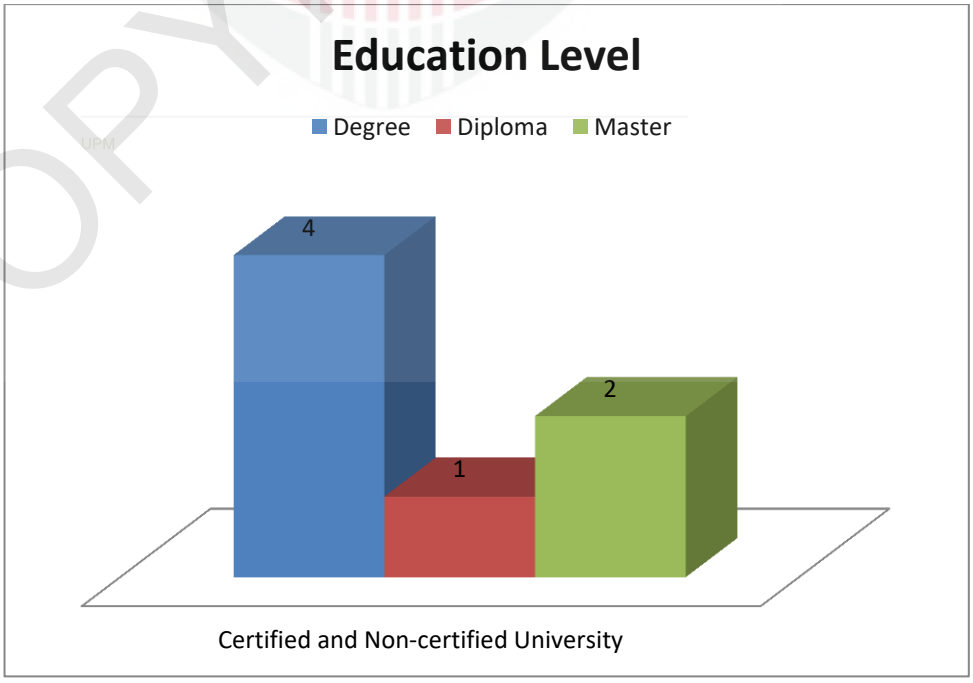


Figure 9: Education level of respondent's

Table 9: Summary of respondent's OSHMS competency

Characteristics		N
Competent in OSHMS	Yes	5
	No	2
Major	Environment	1
	Safety	6
	Health or hygiene	1
	Engineering	2
	Management	2
OSHMS training	Yes	5
	No	2
Experience handling OSHMS	Yes	5
	No	2
Years of experience in handling OSHMS	< 10 years	3
	>10 years	2
Involved in developing OSHMS	Yes	3
	No	2

4.2 Level of Implementation of OSHMS

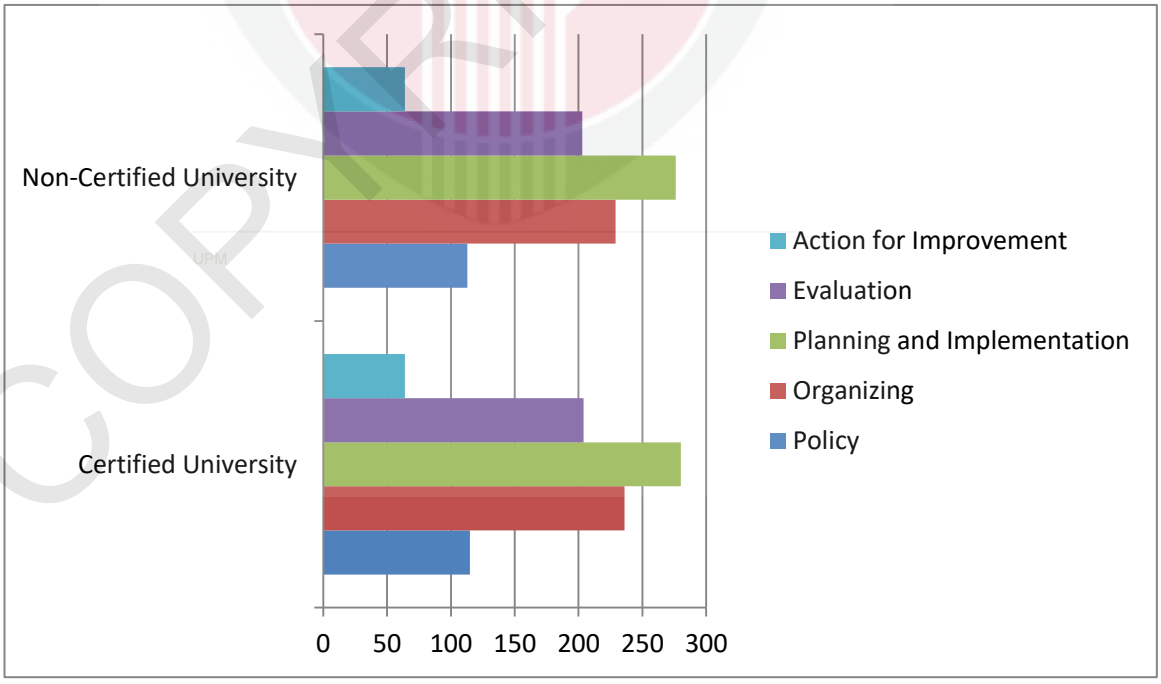


Figure 10: Level of Implementation of OSHMS

4.2.1 Score summary

Table 10: Score summary of OSHMS implementation

Element	Maximum score	Points scored for Certified University	Points scored for Non-Certified University
Policy OSH policy Worker participation	116	115	113
Organizing Responsibility and accountability Competency and training Documentation and record Communication	236	236	229
Planning and Implementation Initial review System objectives System planning, development and implementation Hazard prevention Management of change Emergency prevention, preparedness and response Procurement Contracting	280	280	276
Evaluation Performance monitoring and measurement Accident/injury investigation and reporting Management review	204	204	203
Action for Improvement Preventive and corrective action Continual improvement	64	64	64
Total	900	899	885

4.2.2 Level of Achievement

Level of achievement for certified university: **Level 10 (99.8%)**

Level of achievement for non-certified university: **Level 10 (98.3%)**

4.3 Factors that Influence the Implementation of OSHMS

Table 11: Summary of factors that influence the implementation of OSHMS

Finding	Certified University	Non-Certified University
Motivation for developing OSHMS		
Social responsibility and legal issues	5	1
Elimination and management of health and safety risks	5	1
Reduce the cost of health and safety management	3	2
Responding and complying with interested party implementation of OSHMS	2	1
External support needed implementing for OSHMS		
Policy	3	1
Risk assessment	4	1
Legal compliance	4	2
Inspection and correction	4	1
Problems in implementing OSHMS		
More complicated	3	1
Excessive cost of obtaining and maintaining certification	4	2
No incentives	3	
Lack of enforcement from authorities	1	
Lack of awareness on safety culture	5	1
Lack of employee representative's commitment in OSH	5	
Effectiveness of implementing OSHMS		
Prevention of accidents	4	2
Legal compliance	4	2
Effectiveness on-site safety and health management	3	2
Improving quality	3	2
Improving productivity	4	2
Reducing management costs	3	2
Improving safety consciousness of management	3	2
Improving safety consciousness of workers	4	2
Improving university's image	4	2

CHAPTER 5

DISCUSSION

5.1 Sociodemographic Information

Age of respondents

Based on Figure 7, it shows the summary of respondent's age category which involves seven numbers of respondents from both universities. As stated by K. Njeru (2014) determination of the respondent's age category is important to ensure the study findings are reliable. Two of the respondents are in the age range of thirty-five years old to forty years old while other three respondents are in the age range of thirty-one years old to thirty-five years old and two respondents is in the age range between twenty-six years old to thirty years old. Based on the age range of the respondents majority are in their middle age as reported by K. Njeru (2014) this age range is matured enough and can be relied on to make study conclusions in regard to their responses.

Education level

In this study the highest level of education of the respondents are also required in accordance to Gaceri (2015) respondents with education will be most suitable to provide data as needed by the study. Referring to Figure 8 majority of the respondents are degree holders, two master holders and one the respondent is a diploma holder. This shows that the information provided from the respondents is best suited as required by this study.

Years of working

According to Figure 9, only two employees with 1-5 years of work experience while two employees with 6-10 years of work experience and the rest with 11-15 years of work experience in the university. In accordance with K. Njeru (2014) the period of time the respondents worked in an organization is important to identify how long they had been in the institution for the reliability of the study findings this is also aligned with (Gaceri, 2015) which stated that with enough experience the respondents are good enough to give information needed by the study. However, the respondents in non-certified university have less than a year working experience in the university. Responses from the respondents may affect the objective of the study.

OSHMS competency

The study found it relevant to identify the OSHMS competency of the respondents or in other words whether the respondents have attended training for OSHMS. This is important as they have awareness on the importance of having a systematic management on safety and how this system works in an institution. OSHMS can act as guidance on how to manage safety in a systematic way as it promotes continual improvement which consists of (1) policy, (2) organization, (3) planning and implementation, (4) evaluation and (5) action for improvement. This is also important because having competency in OSHSM reflects on the effectiveness of OSHMS implementation in the organization. Apart from that, the respondents have a better understanding on the problems and barriers they face in implementing OSHMS in the organization.

As shown in Table 9, it shows that almost all of the respondents are competent with OSHSM (n=5) and respondents from certified university have been to OSHMS training (n=5) while (n=2) respondents from non-certified university did not attend training and are not competent person in OSHMS. Based on Table 9, it also shows four of the respondents are major in safety and the respondents also majoring in other field which are environment (n=1), health or hygiene (n=1), management (n=1) and engineering (n=1). Five of the respondents have experienced in handling OSHMS while two of the respondents have ten years of handling OSHMS and developed OSHMS in certified university while two of the respondents from non-certified university do not have experience in handling OSHMS in the university. This shows the respondents' information from both universities are relevant and able to achieve the objective of this study.

5.2 Level of implementation

A study that was conducted in Egerton University in Kenya by K. Njeru (2014) stated that it is a necessity to establish the implementation of occupational safety and health management system in the university by determining the level of each element of continual improvement. During the data collection in certified university we have been informed that there were initially two faculties that were certified with OHSAS 18001:2007 however currently there is only one faculty that is certified with ISO 45001:2018. Even though there is only one faculty that is certified, the OSH management of the university decided to implement the same framework of the certified faculty for the whole university. Currently the safety management is adapting OHSAS 18001:2007 and in the process of integrating their system with the new ISO 45001:2018.

In the other hand, the non-certified university is not certified with OSHMS. Based on the interview session, we have been informed that the OSH management was recently established at the end of 2019 and have been operating less than a year until now. Furthermore, the executor of OSH management in non-certified university has only one year experience in handling OSH in the university. Before the establishment of OSH management, the OSH committee was based on voluntary and does not involved all level of organization in the university due to no volunteers to hold the responsibility and position specific on OSH. At present, the OSH management did not comply with all the elements of OSHSM, however, focusing on the main elements in the OSHMS which are relevant and important for the university at the moment. Due to the COVID-19 pandemic assessment of documents, site visits cannot be execute and less interviews can be arrange with the respondents in non-certified university.

5.2.1 Policy and Worker Participation

Based on the audit session, the safety management responses in certified university shows that the development of the OSH policy are excellent which this element achieve almost maximum score. The management cooperated well and provide all information with translucence. In assessing the policy documentation according to Achieng (2013) the questions that are asked regarding policy are: the availability of a written Safety and Health policy that is dated, made effective by the signature of an accountable person in the university, in dual language, communicated to all employees; whether Safety and Health of employees and third parties was considered: the commitment of the director to continually improve Safety and Health; whether named manager has overall responsibility to implement Safety and Health; competency of employees to undertake job safely among others.

Certified University

The policy in certified university has been formed based on OHSAS 18001:2007 as a guideline showing their top management commitment in developing safety and health in the university. The policy has clearly stated that the safety management is committed to provide a sustainable safety and healthy environment for its staff, students and interested parties. The policy is communicated well and can easily access to all student and employees through their university's safety and health official website and safety corner which can also be access to all including external parties. In addition, the policy can be clearly seen in all strategic places in the university in order for the students and employees in the university are aware of the university's policy. Based on interview sessions, they mentioned for every new staff that was employed in the university will be prepared with OSH kits which consist of a hard copy of the safety and health policy. In addition, through self-audit students and staff are able to show the location of the policy in the university which shows they are aware on the existence of OSH policy in the university.

OSH policy acts as the foundation for employees to participate and commit in the implementation of safety and health management. As reported by (Workplace Australia, 1993 as cited in Leung, 2000) a simple and effective OSH policy must include the roles, functions and responsibilities of safety and health representatives, committee members and employees which reflects on the awareness of their roles in managing safety and health. Apart from that, as said by one of the respondent, in establishing policy and OSH programs in the university decisions are directly come from the top management thus with the support of the top management this will indirectly influence all members and staff in the university to participate. In order to

establish an effective OSH policy both top management and employees must show their commitment and participation in managing safety and health in the university.

In regards for workers participation, every OSH representatives are consulted on relevant aspects of OSH through the website and a hardcopy was given on their roles and functions in OSH. Even though the employees have been given an explanation on their duties however they still did not give full cooperation to demonstrate their OSH responsibilities due to intolerance to new changes. Lacking in awareness on the needs of safety and health management and comfort with the current safety are some of the factors that the employees are resistance to give full participation in OSH. There are two ways to overcome these which are through consultation and participation. The safety management will have an engagement and training which called an OSH improvement program to help the representative to improve on the implementation of OSH in their respective faculties. To improve the participation of students in safety they have an interactive session with the undergraduate students every early semester and safety briefing for final year project while an open session was done for postgraduate students.

Non-certified University

Regarding the non-certified university, they have established an OSH policy before the establishment of OSH management. The OSH policy has been updated based on the requirements in the OSHA act after the establishment of OSH management in 2019. However, not all elements in the policy have been complied as they are still adapting the OSH requirements in the university. As for worker participation, all board of directors and employees are giving their full cooperation in executing their OSH tasks.

5.2.2 Organizing

Certified University

As reported in ILO-OSH (2001) the employer must take full responsibility to protect the worker's safety and health and assigns or provides leadership for OSH in the organization (K. Njeru, 2014). This element is important in looking at the employer's responsibility in providing the equipment and resources needed to implement OSH. The commitment clearly shows by the board of directors in certified university which they always support in any decision made regarding safety and health for the university. The vice-chancellor of certified university gives full support in migrating current system to ISO 45001 to be implementing in the whole university. The board of directors also participate in meetings and walkabout in the university to see the current state of safety in the university. All responsibility in delegating safety and health implementation in each faculty is put on every dean and safety representative. To monitor the OSH performance a self-evaluation reporting of every faculty the safety representatives must update through online system for every three months.

Having training and competency are also important for a successful implementation in OSH as stated by McAteer (1981) to establish safety culture for all level of people in the society, safety education and training is needed (K. Njeru, 2014). Regarding to certified university they have a system called Training Analysis and Matrix which is a system that identifies the personnel that are required training by law and individuals for special training and expertise. Through training will improve employee's communication in accordance to Leung (2015) more employees were observed to communicate with Safety and Health management team on OSH issues. The existence of proper and advance communication system in certified

university makes it easier for employees to report hazards and any accidents happened in the university to the management faster and efficiently. In addition, this system is not limited only to employees but also to students and external parties which they can report any incidents and hazards through their official OSH website.

According to Armstrong (2011), OSH management systems must have a proper documentation that is clearly written, periodically reviewed, communicated and easily access to all members in the organization (K. Njeru, 2014). Based on audit session, the documentation in certified university was shown with transparency and every elements of the audit was proved with the documents required. The documentation system showed was very systematic as according to OHSAS 18001 frameworks. The documents easily access to all employees and also students in certified university where all documents regarding hazard reporting, number of incident cases, procedures, manuals and others can be access in their official OSH website. This was done to enable transparency of how the OSH management in the university works and to allow all members in the university updated with the information on hazards or accidents.

Non-certified University

In the establishment of OSH management in the university all board of directors giving their support in realizing the importance of having specified centre in managing all OSH matters in the university. However, as for certain people OSH is something new for their nature and requires some time to get used with the requirements in OSH. Apart from that, before the existence of OSH management their OSH committee are based on voluntary which are not involve all levels of the organization in the university. Currently, they have elected new members for OSH

committee who consist of representatives from employers and employees. This shows that all employers and employees are giving their best in participating and managing OSH in the university.

The OSH management provide training to all individual based on their scope of work. As the management is still new in the university they did not used websites as their main platform however any reporting on hazards are manually by reporting it to the OSH management office or to the OSH representative. For documentation, currently they are still in progress of tackling and updating the documents for the basic elements of OSH.

5.2.3 Planning and Implementation

In OSH management system, planning on how to execute and implement the objective of the organization's policy is important. As stated in Leung (2015) for effective strategies in OSH set up by the management are link to planning and implementation of OSHMS which important for sustaining continual improvement and for the establishment of safety culture. For planning and implementation the sub-elements consist of initial review, system objectives, system planning, development and implementation, hazard prevention and control, management of change, emergency prevention, preparedness and response, procurement and contracting.

Certified University

As for this element, in certified university the initial review was done before the system was implement to identify the weaknesses thus appropriate planning was execute to achieve their goals since then. Their objectives are established based on their previous year achievement's that will be discussed at the early of the year with the involvement of all safety representatives and the board of directors in UMP.

Plans was structured and prepared by the OSH management team while for the execution of the plans are handed to the safety representatives in the university. In order to ensure the execution of the plans, the safety management form a system for planning, scheduling and prioritizing which they set a key performance indicator (KPI) for university and safety representative level that they need to achieve and reported for every three months.

Procedure for Hazard Identification, Risk Assessment and Risk Control (HIRARC) was established from OHSAS 18001 frameworks as a guideline as for now the OSH management is going for Hazard Identification, Risk Assessment and Opportunities (HIRAO) as set in ISO 45001. Procedure for procurement and contracting was established for contractors and purchasing. Regarding on emergency prevention, preparedness and response many arrangements was done with others agencies and authorities. They also carry out drill and training in the university like HAZMAT and Bomb. Plus, they also have a fire certification for the employees which are good initiatives for university to be prepared in any emergency.

Non-certified University

The management is focusing in handling and complying on the basic elements in OSHMS. They developed their objectives based on the KPI which will be done every three months and their overall achievement once a year. Currently, due to COVID-19 pandemic the management is tackling this issue which interfere their plan and goals for the management.

5.2.4 Evaluation

Certified University

All procedures that are required for performance monitoring and measurement has been developed, established and periodically reviewed by OSH management. To monitor the performance whether the current safety and health control measure are working to achieve the set standards was done by monitoring report from safety representative through online reporting for every three months. Proactive monitoring was done by conducting the necessary safety program in the university and reactive monitoring by monitor the incident rate. As for responsibility, accountability and authority monitoring at different levels in the management structure was done by auditing the performance of every safety representatives.

In determining the overall performance of the system and its effectiveness in protecting the safety and health of workers, arrangement to conduct periodic audits must be established (ILO-OSH, 2007). Internal audit was done yearly for the whole university and for every safety representatives to monitor on the safety performance. For the past few years there are improvements on their safety performance and their aim in ensuring the minimum score of audit compliance for every faculty was achieved last year. In other hand, there is lack in legal compliance due to no verification of design for the fume hood in the lab however other precaution steps was done in order to ensure the fume hood are in good condition such as annual inspection for every fume hood.

Every quarter any incident or accident must be report to the management for further investigation. A platform has been created by the safety management team to enable employees, students and external parties to report any accidents or incidents

which are through their official OSH website. Investigations were done by the safety management team and simplify the case. The case will be posted in their official OSH website to inform on the incidents that occur in the university. Achievement, incidents and results of the audit will be presented during management review with the top management and safety committee meeting for necessary action and improvement once in a year.

Non-certified University

The performances of every safety representative were done manually by record and observe their work practically at site to monitor their KPI. To monitor the performance of the current safety and health measure the safety representatives will report to the management. The management will also monitor the safety representative's achievements regularly.

5.2.5 Action for improvement

Certified University

Arrangement to establish and maintain preventive measures and corrective action was made upon the OSH management system's performance monitoring and measurement, OSH management system audits and management reviews in the university. The measures is not inclusive to the place of incident but will also be implemented for the entire university to prevent from the incidents occurring in the future. Programs and campaigns are one of initiatives to increase the awareness and knowledge of employees and students in order to encourage them in participating in safety measures.

5.3 Factors that influence the implementation of OSHMS

The success and failure of OSHMS implementation is affected by several factors which can be categorized into (i) motivation for developing OSHMS, (ii) external support needed to implement OSHMS, (iii) problems to implement OSHMS, (iv) effectiveness of implementing OSHMS and (v) the elements of continual improvement of OSHMS. The implementation of OSHMS can be unsuccessful due to poor of information dissemination, lack of management commitment and insufficient employee participation as stated by some researchers (Goh et al, 2012; Robson et al, 2005;). In contrary, Bakri et al (2006) supports the implementation of OSHMS which they stated that the non-existence of the system is the result of many occupational accident injuries.

5.3.1 Motivation to develop OSHMS

Based on Table 11, shows the results from the interview with the highest response for motivation to develop OSHMS are *social responsibility and legal issues* with four responses while *elimination and management of health and safety risks* with three responses. The main focus of the OSH management in both universities is the OSH management are responsible in protecting the safety and health of employees, students and external parties. As stated from the respondents in certified university *'to culture staff with healthy and safety working place and nurturing the students and prepare them for industries'* and *'the main necessity is to create healthy and safe environment for all members in the university also creating a value added graduate with minimal level of awareness on safety'*. Responses shows their commitment in providing the best safety and health environment in the university as well as preparing students in cultivating safety culture for future employment.

5.3.2 External support to implement OSHMS

Next, respondents mostly stated that they require external support to implement OSHMS for *risk assessment* and *inspection and correction*. The management needed external support for risk assessment because at present the management is adapting to ISO 45001 which have a different structure than the previous system especially for Hazard identification, Risk assessment and Opportunity (HIRAO). Even though they have attended in-house training for HIRAO however they are still unclear on how to implement it. Top of that, the management also require external support to identify and map the risk due to the emerging of new risk for every new research conducted by students or lecturers. As claimed by a respondent *'mapping helps to identify and give awareness on the major risk that the people in the university are facing and it is easier for us to monitor'*.

Besides, *inspection and correction* also require help from external support due to scarcity numbers of OSH management staff to handle the inspection for the whole university. A comment made from the respondents stated that *'it takes more time and effort for them to cater all inspection thus inspection was done by the respective safety representative from each faculty to report to the OSH management for every three months'*. Apart from that, they also require the third party to inspect and audit their current OSH management for exterior ideas or opinion on how to improve on their current OSH management as reported by (Achieng, 2018) external factors such as external agencies also influence the success of the OSHMS implementation.

In regards to non-certified university the management require support for legal compliance because in university there are many legal requirements that needed compliance. Apart from that, the management also require support for training,

documentation, audit and management review. The management require external support in managing the basic elements in OSH. Moreover, the management require external support because they are short of hand as there are only two man powers in the management currently to cater and manage all OSH issues in the university.

5.3.3 Problems in implementing OSHMS

There are several problems that were frequently shared during the interview which are lack of awareness on safety culture with five responses, lack of safety representatives commitment in OSH with five responses, no incentives with three responses, excessive cost of obtaining and maintaining certification with two responses, complications to implement system with two responses and lack of enforcement from authorities with one responses. These responses shows the challenges faced by OSH representatives in handling safety and health responsibilities in certified university they are hoping that they will find the best solution in the near future. These responses correspond to one of the previous studies by (Santos, Barros, Mendes & Lopes, 2013) which stated that the main difficulties in OSHMS are difficulties in motivating personnel, difficulties in changing the culture in a company.

Lack of awareness on safety culture is one of the most common problems that safety practitioners face in implementing OSH in an organization. As mentioned by Williamson et al., (1997) to understand the safety culture in a workplace the most important factor is assessing safety needs and this is done by assessing perceptions and attitudes of the workforce. The respondents expressed that they are not focusing on certification because for them the utmost measures is to foster the safety culture. Nonetheless, there are some obstacles to foster the safety culture for employees and students namely (1) resistance to changes, (2) no commitment and willingness to

execute OSH tasks, (3) many workloads, (4) too many goals and KPI to achieve, (5) new student admission every four years and (6) good example from head of department. At the same time, these impediments can influence the commitment of the safety representatives in carrying out their OSH duties.

Firstly, the new admission of students as well as new employments has been a challenge for the OSH management in educational sectors as to cultivate the safety culture in someone new is not an easy task. Nevertheless, new students and employees with no background in safety are willing to learn and change. In comparison to employees who have worked for a long time in the university they are resistant to change and are comfortable with the current safety level in the university. Having mind-set of comfort zone is the main factor which will not foster the safety culture for the employees. In overcoming this problem they need to make safety as a habit which they develop a policy and an intervention to encourage everyone to advise one and another who they see to have done any non-compliance in term of unsafe act or unsafe condition in the university.

Another factor that influences the safety culture among the employees and students in the university is from the commitment and good example from the top management. This is because with more involvement from the top management will influence to improve workforce from the subordinates. The top management are responsible in showing good examples which enable to cultivate safety culture by involving all OSH activities, meetings and discussion that were conducted in the university. Apart from that, the head of department of faculties are also responsible in delegating their OSH responsibilities to their safety representatives actively as this will ensure the continuous safety task been executed. This is proven by the internal

audit of the university which shows the faculty with highest commitment of head of departments have the highest compliance to OSH.

Aside from that, no incentive is one of the factors that were mentioned during the interview. No incentives can also be one of the contributing factors that influence the commitment of safety representatives. This is because the safety representatives were assigning to carry out OSH duties willingly and no extra incentives were given for them. In executing OSH duties they are burden with other responsibilities because they hold other position in the university such as lecturers and lab staff. Without extra incentives the safety representatives are not committed and not willing to perform their extra duties apart from that they also need to achieve not only KPI for safety but also for their educational KPI in the same time. However, the safety management provide rewards and handle an annual dinner to celebrate and appreciate all safety representatives for committing in OSH.

Moreover, one problem that is highlighted by the respondents is that they face lack of enforcement from authorities towards government sectors as compared to private sectors. As mentioned by the respondent *'there is a double standard in enforcing safety from the authorities and this is a challenge for us as the safety practitioner in the government sectors'* Apart from that, the enforcement from authorities should be as stringent as in private sectors or at least at the same par this is because the safety practitioner in government sectors require support from the authorities for evidence which they will need to use to show the board of directors in the university. This is important as this evidence is important for them to require budget in performing OSH improvement and tasks in the university.

As for the rest, complicated and excessive costs to obtain and maintain certification are not a major problem for certified university as they have been managing OSH management system for over ten years. However they do face these problems during the start-up of managing this system and hired consultant in assisting them to implement it. After years managing this system they are able to handle on their own by attending training and consultation for improvement. In their opinion, migrating to ISO 450001 is much easier from previous system as this does not require more documentation however there are few other challenges they face such as the audit for ISO 45001 is much more stringent.

Moreover, cost for obtaining and maintaining certification are also manageable because any expenses for OSH are approved by the board of directors and the university have allocate the amount of budget for OSH yearly. However, the management mentioned that there is scarcity of budget for maintaining and complying for legal requirements. This is because the university has no certification and permit for the LEV system thus the management requires more budgets for replacing all the LEV system in the university. In protecting the safety and health of workers and students the management initiative was by maintaining and hire third party for inspection for all LEV system. This initiative was to ensure the LEV systems are in good condition and does not expose any harm for the students and worker who operate it.

Nonetheless, for non-certified university the board of directors are not committed in investing for OSHMS as the management are focusing on tackling the main elements of OSH in the university. In additional, the awareness on the benefits of OSHMS is still lacking thus the assurance in spending the university's budget on OSHMS is lacking too. They are not interested in investing on OSHMS because too

many workload for maintaining the system and scarcity of man power to manage the system.

Lastly, human factors are also a challenge by the safety practitioner in implementing OSH not only for educational sectors but for any other sectors. For certified university apart from not focusing on certification the management also one step ahead by investigating and studying the human factors which influence a person in the university to participate in OSH and to cultivate safety culture. This is because as believed by one of the respondent *'the certification of OSHMS is just a tool and a second consideration for compulsory as it does not reflect the safety culture of the employees and students'*. Thus, in the future the OSH management are tackling the human factors in order to improve the involvement of all members in the certified university for OSH as mentioned in Berg (2013) human factors indeed contribute to organizational aspects such as safety culture.

5.3.4 Effectiveness of OSHMS

Many studies have proven there are many benefits and advantages in implementing OSHMS as stated in ILO-OSH (2011) (1) provide a framework to establish and run OSH programme that are require for action and monitoring, (2) improve communication mechanisms, policies, procedures, programmes, and objectives, (3) possibility of integrating OSH requirements into business system align with OSH objectives, (4) conducive environment in building a preventative safety and culture and many more. Apart from that, Bryan (1999) reported that OSHMS act as a plan to reduce and eliminate hazards at workplace and consists of a planned, documented and verifiable method of managing hazards and its associated risks.

This is proven based on the interview session the respondents have felt there are positive changes and improvement on safety management. The improvements on OSH were clearly seen based on the internal audit results in the university increases throughout the years. The respondents also stated implementation of OSHMS can improve for prevention of accidents with four responses, legal compliance with four responses, effectiveness on-site safety and health management with three responses, improving quality with three responses, improving productivity with four responses, reducing management costs with three responses, improving safety consciousness of management with three responses, improving safety consciousness of workers with four responses and improving university's image with four responses. These responses also align with a study by (Santos, Barros, Mendes & Lopes, 2013) which they mentioned that the main benefits that Portuguese SMEs gained from OSHMS are ensuring compliance with legislation, improved working conditions and improve internal communications culture.

5.3.5 Bias

In completing this study there are few biases occurred which are the assessment of the audit in certified university was conducted by the author which is not a competent person auditor for OSHMS. Both universities the scores were given by the OSH officers for the respective universities. Thus, the scores does not represent the true implementation of OSHMS as it was done by a not competent person and the author was not able to do the assessment of documents required by the checklist for non-certified university. Moreover, no site visits was done for non-certified university hence the actual implementation of OSHMS was not able to be observed. There were also lack of respondents from employees and students for interviews in both universities as the respondents are important to show their

awareness of the existence of the system being implemented in the university, internal communications, and the participation of workers in OSH matters.

To overcome the bias some guidelines by ILO (2011) are auditing are by competent person or team that have specific competencies and experience in activities, audit criteria and audit techniques. Second, audit scoring system should have a rubric or benchmark for better understanding on how to rate the scores for the checklist. The auditor should be consistent for both universities to avoid conflict of interest or is unbalanced in terms of points of view which related to auditor's professional background and training. Lastly, information from multiple sources for data collection may improve validity and the complexity of integrating these sources can influence reliability during audit. It is also important to conduct interview and observational method to identify the implementation of procedures and written policies (Bigelow and Robson, 2005).

CHAPTER 6

CONCLUSION STUDY, LIMITATION AND RECOMMENDATIONS

6.1 Conclusion

The main findings from this study were that both universities achieve Level 10 for OSHMS achievement with or without certification. However, the results cannot be generalized to all educational sectors due to lack number of universities for comparison and bias in scoring the checklist. The OSH management in certified university have been established and managed OSH in the university with more than thirty years of experience. This makes them matured and enabled to understand the real challenges in handling OSHMS and OSH in the university. More experienced enabled the management in overcome their problems in regards to OSHMS. As for now, the management is focusing in understanding the role of human factors in safety culture and requires the support from government authorities in supporting the OSH practitioner in educational sectors. In contrary, the OSH management in non-certified university have been established and experienced handling OSH in the university less than a year thus the management did not experienced the same challenges as in certified university. Currently, the management in the non-certified university is focusing to comply the main elements in OSHMS and tackling the COVID-19 pandemic in the university.

6.2 Limitation

There are some limitations throughout the study which are listed below:

1. Arrangement for interview cannot be made in non-certified university thus fewer respondents can be obtained.
2. No assessment of documents, site visits and fewer interviews can be executed in non-certified university.
3. Lack number of universities for comparison.
4. There are few available data related to OSHMS in universities and certified and non-certified OSHMS in university thus difficult to find the references for the data interpretations.
5. Findings and conclusion collected from interviews cannot be generalized for all universities.
6. Secondary data collected from the universities home pages has some limitations.

6.3 Recommendations

6.3.1 Recommendations for Further Study

1. A competent person should conduct the audit for OSHMS to prevent bias in scoring the checklist
2. More universities for comparison should be conduct in the future.
3. It is recommended to see the extent of safety representative's perception on effectiveness of OSHMS and challenges in executing the OSH tasks in the university.
4. There is a need to increase the number of research on the implementation of OSHMS in the educational sectors in Malaysia.
5. For future research to hand in hand with safety practitioner in education sectors in studying the role of human factors and safety culture in OSH management.

6.3.2 Recommendation for Authorities

Some of the actions that are recommended for the authorities to improve the OSH in education sectors:

1. The government authorities should take strict action to all sectors especially in educational sectors as this sectors does possessed many risk and hazards in daily tasks.
2. The government authorities should investigate and include the data on injuries and accidents in educational sectors available for secondary data for future research.

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APPENDIX 1: ETHICAL APPROVAL LETTER

ETHICS COMMITTEE FOR RESEARCH INVOLVING HUMAN SUBJECTS (JKEUPM)
UNIVERSITI PUTRA MALAYSIA

Research title	:	**The Comparison of Implementation Level of Occupational Safety and Health Management System (OSHMS) Between Certified and Non-Certified Public Universities.**
Study Site	:	**University Malaysia Pahang and Universiti Putra Malaysia.**
JKEUPM Ref No.	:	**JKEUPM-2019-429**
Researcher	:	**Nur Farhana Abd Samad Jamaluddin**
Supervisor	:	**Assoc. Prof. Dr. Emilia Binti Zainal Abidin**

Documents received and reviewed with reference to the above study:

1. Ethics Application Form, Version 1 dated 25/10/2019
2. Respondent Information Sheet & Consent (English), Version 1 dated 25/10/2019
3. Proposal (English), Version 1 dated 25/10/2019
4. Questionnaires/ Interviews (English), Version 2 dated 3/12/2019
5. Questionnaires/ Interviews (Malay), Version 2 dated 3/12/2019
6. Curriculum Vitae of:
    a. Assoc. Prof. Dr. Emilia Zainal Abidin
    b. Prof. Dr. Noor Hassim Ismail
    c. Nur Farhana Abd Samad Jamaluddin

The University Research Ethics Committee, Universiti Putra Malaysia (JKEUPM) operates in accordance to the ICH-GCP Guidelines.

Decision by JKEUPM:

[X] Approved

[X] **Permission MUST BE OBTAINED from the respective hospitals/ institutions before conducting the research**

[ ] Disapproved

Please note that the approval is **VALID UNTIL 17 DECEMBER 2020**

Researchers should comply with the following:

I. Complete a Study Final Report upon study completion (Form 3.2).

II. Ethical approval is required in the case of amendments/ changes to the study documents/ study sites/ study team.

APPENDIX 2: RESPONDENTS INFORM CONSENT FORM

FORM 2.4: RESPONDENT'S INFORMATION SHEET AND INFORMED CONSENT FORM

Please read the following information carefully and do not hesitate to discuss any questions you may have with the researcher.

1. STUDY TITLE :

The Comparison of Implementation Level of Occupational Safety and Health Management System (OSHMS) and Its Factors between Certified and Non-Certified Public Universities

2. INTRODUCTION:

We would like to invite you to take part in this research study. This study aims to look at the implementation level for public universities. It involve the group of OSH representative and safety comittee in both certified and non-certified public universities

A study conducted by Subhani (2010) states that industrial sectors are the most familiar sectors for the implementation of OSHMS to be compared to the education sectors such as universities, colleges and also schools. Besides, it is difficult to relate the significance of OSHMS in educational sectors as most of the studies regarding OSHMS carry out in industries (Subhani, 2010). Educational sectors are as important as any sector because this sector is growing and increasing which includes employers with extensively differs in organizational cultures and exposure to high-risk exposures (K.M. Venables & S. Allender, 2006)..

The safety and health aspects in educational settings are still lag behind in studies and research as it is not as prominent like other sectors. OSHA exists to create a safe and healthy working environment and also promote in captivating safe and healthy culture as stated in Section 15 and Section 24 in OSHA 1994 which both sections stress on the duties of employers and employees on the safety and wellness of an organization. In creating a conducive working space both Occupational Safety and Health Act 1994 and Occupational Safety and Health Management System should be given attention and enforcement.

3. WHAT WILL YOU HAVE TO DO?

If you agree to take part in this study, we will ask you to complete the checklist enclosed with this sheet. This is a checklist be used to identify the implementation level of OSHMS in certified and non-certified public universities in Malaysia. This Occupational Safety Health Management System Audit Checklist and software is developed from MS 1722:2011 to complement the OSHMS Guidelines Then, we will explain to you about the procedure and informed consent letter will be distributed. For semi-structured interview, you will need to discuss on the questions will be asked based on the scores of checklist and the elements of the checklist. The duration of the semi-sturctured interview is 45 minutes. This study inlvolve the safety representative and safety committee. Due to few impediments such as Movement Control Order (MCO) online questionnaire and virtual interview also will be used as a method for this study.

4. WHO SHOULD NOT PARTICIPATE IN THE STUDY?

You should not participate in this study if:

- The person is not apart of the safety committess or safety representative in the

university

5. WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

There are no individual benefits in taking part in this research study. However, to acknowledge your help with our research all participants will be given a token of appreciation from us.

(b) TO THE INVESTIGATOR?

By volunteering you will help us to reveal the implementation level of Occupational Safety and Health Management System (OSHMS) and the factors that influence the implementation of OSHMS. The research will contribute to the baseline of for OSHMS implementation level in public universities in Malaysia.

6. WHAT ARE THE POSSIBLE RISKS?

No possible risk will present

7. WILL THE INFORMATION THAT YOU PROVIDE AND YOUR IDENTITY REMAIN CONFIDENTIAL?

Yes, all information collected will be kept strictly confidential. Any information relating to you, your workplace and results of the data obtained will not be identifiable in published material; your data not be disclosed to any regulatory body and is for research purposes only.

8. WHO SHOULD YOU CONTACT IF YOU HAVE ADDITIONAL QUESTIONS DURING THE COURSE OF THE RESEARCH?

Prof. Madya Dr. Emilia Binti Zainal Abidin (Supervisor)
Department of Environmental and Occupational Health,
Faculty of Medicine and Health Sciences,
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Tel: +60389472643/+60389472396
Email: http://www.medic.upm.edu.my/listsajkppbm

Nur Farhana Binti Abd Samad Jamaluddin
Researcher
Tel: +60197572215
Email: nurfarhanaasj.97@gmail.com

*Please initial here if you have read and understood the contents of this page*_____

9. CONSENT

I …… Identity Card No. ……

address……

…….. ……..hereby voluntarily agree to take part in

the research stated above *(~~clinical /drug trial/ focus group/~~ questionnaire-based/audio/video recording/interview-based).

I have been informed about the nature of the research in terms of methodology, possible adverse
effects and complications (as written in the Respondent's Information Sheet). I understand that I have the right to withdraw from this research at any time without giving any reason whatsoever. I also understand that this study is confidential and all information provided with regard to my identity will remain private and confidential.

I* wish / do not wish to know the results related to my participation in the research

I agree/do not agree that the images/photos/video recordings/voice recordings related to me be used in any form of publication or presentation (if applicable)

* delete where necessary

Signature ……..…… Signature ……..…….
(Respondent) (Witness)

Date :…….. Name :……..…..

I/C No. :……..…..

I confirm that I have explained to the respondent the nature and purpose of the above-mentioned research.

Date ……..…… Signature ……..…….
(Researcher)

APPENDIX 3: SEMI-STURCTURED INTERVIEW GUIDE

SEMI-STRUCTURED IN-DEPTH INTERVIEW PROTOCOL

Date/Time	:	
Venue	:	
Informant ID	:	

Introductory Script:

Assalamualaikum and welcome. My name is Nur Farhana Binti Abd Samad Jamaluddin and I am a Bachelor science student at University Putra Malaysia under Faculty Medicines and Health Sciences.

The purpose/objective of the research and the interview – as per Respondent Information Sheet

Thank you for your participation, I am very honoured to meet all of you and I hope our discussion will benefit all of us. For today's discussion I hope you can share about your experience and perception on the implementation of OSHMS in the university. I would also like to know the difficulties and challenges in implementing OSHMS. Despite the increasing level of interest in OSHMS there have been few formal evaluation studies published. There is also lack of information about how these systems work and how effective they are in preventing occupational injury and diseases. The purpose of this study was to evaluate the factors that influence implementation of OSHMS at public universities. Today I am not alone, these are my colleagues from UPM they will be taking notes and helping record the discussion.

Obtain informant consent & member check process

This session will take about 60 minutes. Therefore, I would like to obtain your consent formally to participate this study [refer to RIS for signatory]. At the same time, I would like to ask your permission to audio record this interview, so I may accurately document the information you convey. We're going to be audio recording today so we don't miss any of the comments because we're not able to write them down quickly enough and the audio recorder helps us to capture all of our conversation. In addition you will be contacted later to verify the transcript of the interview to help improve the accuracy, credibility, validity of the information.

Confidentiality

All of your responses will remain confidential and will be used to develop a better understanding of your perception on the factors that influence the implementation of Occupational Safety and Health Management System and if you have a cell phone we'd appreciate if you'd turn it off or turn it on the quiet mode. We have some refreshments and some chocolate.

Research Question(s)	Interview Questions	Probing Questions to be used in order to clarify and expands questions
Sociodemographic of the safety committee	Tell me a little about your background - How long have you been in this organization?	1. What do you see as your most important role in OSH in this organization? - Are you involved in the management of Safety and Health in your organization? - Can you explain more about the area that you involve? 2. Did you receive a formal OSHMS training? (MS/OHSAS/ISO 45001) - If yes, please state where did you receive the OSHMS training 3. Do you have any experience on handling OSH management system? - If you have, how many years have you experience handling OSHMS?

		4. What is the necessity to implement OSHMS in the university? - Is there opportunities the university will be certify with OSHMS? ACHIENG, O. C. (2018) & Yoon, S. J., Lin, H. K., Chen, G., Yi, S., Choi, J., & Rui, Z. (2013)
Occupational Safety and Health Management System	What do you understand with the term 'Safety and Health Management'?	1. How do you feel the effectiveness of implementing OSHMS? 2. What is your motivation for developing OSHMS? 3. In your opinion, does cost play an important role to implement and certify with OSHMS? - How much does it cost? 4. What are the external supports needed to implement OSHMS? 5. Does the management benefits from OSHMS? - If yes, what are the benefits? - If no, why

		do you say so? Can you explain? 6. Do you have any problem/difficulties with the implementation of OSHMS? - If you have problems, what kind of problem? ACHIENG, O. C. (2018) & Yoon, S. J., Lin, H. K., Chen, G., Yi, S., Choi, J., & Rui, Z. (2013)
Elements of OSHMS	What are the elements of OSHMS: **1. Policy** **2. Organizing** **3. Planning and implementation** **4. Evaluation** **5. Action for improvement**	7. Policy - How does the company policy encourage the participation of employees in managing safety and health? 8. Organizing - Have you identified individuals that are responsible for safety and health that require special training and expertise? What kind of training have they received?

		- Is there a system that ensures that competence needs are identified and met for new employees, transferred or promoted? 9. Planning and implementation - Is there a system for planning, scheduling and prioritizing for safety and health improvement measures? - Are there safety and health procedure that guide the implementation of risk management measures? (HIRARC) 10. Evaluation - Do you actively monitor whether current safety and health control measures are working to achieve the set standards?

		11. Action for improvement - Do you regularly review how well you have you met the objectives in your Safety and Health improvement plans and whether you have met them in them in the agreed timescale? ACHIENG, O. C. (2018) & Yoon, S. J., Lin, H. K., Chen, G., Yi, S., Choi, J., & Rui, Z. (2013)
Employer/employee perspective	In which areas are you involved in the management of Safety and Health in your organization?	1. What is the influence of your capacity to at work on your participation in managing Safety and Health at site? 2. Are there any barriers/underlying factors that may prevent long-term commitment in safety? 3. In your opinion, what would you need in order to get more involved in managing Safety and Health in your organization?

		- If you are equipped with what was stated, does your chance of being involved in an incident increase or decrease? - Why? ACHIENG, O. C. (2018) & Yoon, S. J., Lin, H. K., Chen, G., Yi, S., Choi, J., & Rui, Z. (2013)