MEDIATING EFFECT OF WORKERS' ATTITUDE ON RELATIONSHIP BETWEEN OSHMS AND OSH CULTURE AT CONSTRUCTION INDUSTRY

GIALL BIN BANAN @ JOHN BANAN

THESIS SUBMITTED AS FULFILMENT FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

FACULTY OF BUSINESS, ECONOMICS AND ACCOUNTANCY
UNIVERSITI MALAYSIA SABAH
2020

UNIVERSITI MALAYSIA SABAH

BORANG PENGESAHAN STATUS TESIS

JUDUL : **MEDIATING EFFECT OF WORKERS' ATTITUDE ON RELATIONSHIP BETWEEN OSHMS AND OSH CULTURE AT CONSTRUCTION INDUSTRY**

IJAZAH : **DOKTOR FALSAFAH**

BIDANG : **PENGURUSAN**

Saya **GIALL BIN BANAN @ JOHN BANAN,** Sesi **2012-2020,** mengaku membenarkan tesis Doktoral ini disimpan di Perpustakaan Universiti Malaysia Sabah dengan syarat-syarat kegunaan seperti berikut:-

1. Tesis ini adalah hak milik Universiti Malaysia Sabah
2. Perpustakaan Universiti Malaysia Sabah dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan dibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. Sila tandakan (/):

☐	SULIT	(Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA 1972)
☐	TERHAD	(Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)
☐	TIDAK TERHAD	

Disahkan Oleh,

ALBERTO ANING
PUSTAKAWAN KANAN
UNIVERSITI MALAYSIA SABAH

GIALL BIN BANAN @ JOHN BANAN
PE1211201T

(Tandatangan Pustakawan)

Tarikh : 13 Mac 2020

(Prof. Madya Dr. Shamsul Bahari Shamsudin)
Pengerusi

DECLARATION

I hereby declare that the material in this thesis is my own except for quotations, equations, summaries and references, which have been duly acknowledged.

07 February 2020

GIALL BIN BANAN @ JOHN BANAN
PE1211201T

CERTIFICATION

NAME	:	**GIALL BIN BANAN @ JOHN BANAN**
MATRIC NO.	:	**PE1211201T**
TITTLE	:	**MEDIATING EFFECT OF WORKERS' ATTITUDE ON RELATIONSHIP BETWEEN OSHMS AND OSH CULTURE AT CONSTRUCTION INDUSTRY**
DEGREE	:	**DOCTOR OF PHILOSOPHY**
FIELD	:	**MANAGEMENT**
VIVA DATE	:	**23 AUGUST 2019**

CERTIFIED BY;

Signature

COMMITTEE SUPERVISORY

1. **CHAIRMAN**
   Assoc. Prof. Dr. Shamsul Bahari Shamsudin

   _____

2. **COMMITTEE MEMBER**
   Dr. Julian Paul Sidin

   _____

3. **COMMITTEE MEMBER**
   Mdm. Sharija Che Shaari

   _____

ACKNOWLEDGEMENT

First of all, I would like to thank God the Almighty for His blessings and graces to provide me with the strength and patience in this academic journey until the completion of this thesis.

Secondly, I also would like to take this opportunity to express my deepest gratitude to my supervisors Associate Professor Dr Shamsul Bahari Shamsudin, Dr Julian Paul Sidin and Puan Sharija Che Shaari for their invaluable guidance, patience and encouragement until the end of my academic journey.

Thirdly, I would like to thank the people and organisations that contributed their precious time in providing valuable information regarding the construction industry in Sarawak to assist in the completion of this research. My gratitude also goes to all the respondents who were willing and sincerely responded to my questionnaire.

Finally, I would like to thank my respected mother Kinayau Anjalung, my beloved wife Adilet Atot, my beloved daughter Amenda (16), and my beloved sons Josh Xavier and Joel Anselm (15 and 11) for their love, understanding, support, encouragement until the completion of my academic journey.

Giall B. Banan @ John Banan
23 August 2019

ABSTRACT

The construction industry is crucial to any country. Especially developing countries like Malaysia. However, a fatal accident is always associated with construction work. Therefore, the Malaysian government has enacted the Acts, namely OSHA 1994 and CIDBA 1994 and has established the departments of DOSH and CIDB. DOSH is acted as an enforcement body to ensure the contractors are complying with the OSHA 1994. CIDB is responsible for contractors' development and the construction personnel. Both are providing a free consultation to contractors for the improvement of OSH management system in the work sites. Both also urged the contractors to adopt the proper OSH management system such as OHSAS 18001. With government support, enforcement bodies, and a systematic OSH management system should have shaped the OSH culture. The workers' attitudes should have more matured in addressing and controlling the hazards and risks and other OSH issues in the construction sites. Accidents at construction sites should be controllable and not an issue of concern to everyone. Nevertheless, accidents are still occurring in construction sites. Adopting positivism research philosophy and quantitative method, therefore, this study was conducted in Sarawak. The aimed of this study was to investigate the mediation effect of the workers' attitudes on the relationship between OSH management system elements and OSH culture. The OSH management system elements would include the OSH policy, HIRARC, role and responsibility, training, site inspection, and management review as independent variables, workers' attitude would be the mediator, and the OSH culture was the dependent variable. The survey questionnaires were distributed to seven (7) on-going projects. There were (5) on-going construction sites located in the City of Kuching and two (2) on-going construction sites located in the district of Bintulu. The study showed the mediation effect of workers' attitude on the relationship between OSH management system elements and the OSH culture especially the elements of HIRARC, role and responsibility, and the OSH training. This study also showed the direct effect between the OSHMS especially the HIRARC, role dan responsibility, and the safety training and the workers' attitude, and between the workers' attitude and the OSH culture.

ABSTRAK

KESAN PENGANTARAAN SIKAP PEKERJA DALAM PERHUBUNGAN DI ANTARA SISTEM PENGURUSAN KKP DAN BUDAYA KKP DALAM INDUSTRI PEMBINAAN DI SARAWAK

Industri pembinaan amat penting kepada setiap negara. Terutama sekali kepada negara yang sedang membangun seperti Malaysia. Walau bagaimanapun, kemalangan yang melibatkan kematian seringkali dikaitkan dengan kerja-kerja di tapak pembinaan. Dengan itu, kerajaan Malaysia telah mengubal undang-undang yang diberi nama AKKP 1994 dan ALPIP 1994 dan juga telah menubuhkan jabatan-jabatan seperti KKP dan LPIP. Jabatan KKP bertindak sebagai badan yang memastikan pematuhan AKKP 1994 oleh para kontraktor pembinaan. LPIP pula bertanggungjawab terhadap perihal pembangunan para kontraktor tempatan dan pekerja tapak pembinaan. Perkhidmatan percuma disediakan oleh kedua-dua pihak berkuasa dalam usaha membantu para kontraktor untuk menambahbaik perlaksanaan KKP di tapak pembinaan. Kedua-dua badan berkuasa tersebut juga menggalakkan para kontraktor pembinaan untuk mengadaptasi sistem pengurusan yang lebih teratur seperti OHSAS 18001. Dengan bantuan kerajaan, badan penguatkuasaan undang-undang KKP, dan pengurusan KKP yang sistematik seharusnya sikap pekerja telah menjadi lebih matang dalam menangani dan mengawal bahaya dan risiko di tapak pembinaan. Kemalangan di tapak pembinaan seharusnya terkawal dan bukan lagi isu yang menjadi kebimbangan kepada semua pihak. Namun, kemalangan di tapak pembinaan masih berlaku. Dengan mengadaptasi falsafah positivisme dan cara quantitatif maka kajian ini telah dijalankan di Sarawak. Kajian ini menumpukan pada penyiasatan kesan pengantaraan sikap pekerja dalam perhubungn di antara elemen-elemen sistem pengurusan KKP dan budaya KKP. Elemen-elemen sistem pengurusan KKP termasuklah dasar KKP, HIRARC, peranan dan tanggungjawab, latihan, pemeriksaan tapak pembinaan, dan kajian pihak pengurusan merupakan parameter bagi pembolehubah bebas. Sikap pekerja adalah parameter pengantara, dan budaya KKP adalah parameter tidak pembolehubah. Soalan kaji selidik telah diedarkan kepada tujuh (7) projek tapak pembinaan yang sedang dalam pembinaan. Terdapat lima (5) projek tapak pembinaan yang sedang berjalan yang terletak di Bandaraya Kuching, dan dua (2) lagi terletak di daerah Bintulu. Kajian ini menunjukkan bahawa terdapat kesan pengantaraan sikap pekerja dalam perhubungan di antara elimen-elimen sistem pengurusan KKP dan budaya KKP, iaitu di antara elimen HIRARC, peranan dan tanggungjawab, dan latihan KKP. Kajian ini juga menunjukkan kesan langsung di antara sistem pengurusan KKP elimen seperti HIRARC, peranan dan tanggungjawab, dan latihan KKP dan sikap pekerja dan di antara sikap pekerja dan budaya KKP.

LIST OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF GRAPH

LIST OF BAR CHARTS

LIST OF ABBREVIATIONS

APAU	-	Accident Prevention Action Unit
CIDB(M)	-	Construction Industry Development Board (Malaysia)
COP	-	Code of practice
DOSH(M)	-	Department of Occupational Safety and Health
ERP	-	Emergency Response Procedures
ERT	-	Emergency Response Team
FMA 1967	-	Factory and Machinery Act 1967
HIRARC	-	Hazards Identification, Risks assessment, and Risks Control
HSE	-	Health, Safety Executive (UK)
ILO	-	International Labour Organisation
JHA	-	Job Hazards Analysis
KKP	-	*Keselamatan dan Kesihatan Pekerjaan*
LPIB	-	*Lembaga Pembangunan Industri Binaan*
MS	-	Management system
MS 1722	-	Malaysian Standard (OHSMS) 1722
NIOSH	-	National Institute of Occupational Safety and Health
NOI	-	Notice of Improvement (Issue by DOSH)
NOP	-	Notice of Provision (Stop work notice issue by DOSH)
OSHA 1994	-	Occupational Safety and Health Act 1994
OSH	-	Occupational Safety and Health
OHSAS 18001	-	Occupational Health and Safety Standard (BSI) 18001:2007
PLS	-	Partial Least Squares
PPE	-	Personal protective equipment
PPD	-	*Peralatan perlindungan diri*
SEM	-	Structural Equation Modeling
SHO	-	Safety and Health Officer
SSS	-	Site Safety Supervisor
SS	-	Site Supervisor
SOP	-	Safe Operation Procedure
PKS	-	*Prosedur kerja selamat*
SPKKP	-	*Sistem Pengurusan Keselamatan dan Kesihatan Pekerjaan*

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.1 Introduction

The construction industry is one of the most dangerous industries in respect of health and safety. According to The International Labour Organisation (ILO) (2011), global estimates of direct and indirect costs for accidents are USD 2.8 trillion, equivalent to 4% of the annual global GDP. Several countries have developed individual cost models to estimate the cost impact of accidents. The accidents are also associated with additional project cost, time, scope, company reputation, and their impact on national safety indexes. Malaysia is also not exempted from experiencing the accidents at workplace such as in the construction sites. The construction industry in Malaysia is monitored by the DOSH and CIDB and two important Acts regulate the industry namely the OSHA 1994 and CIDBA 1994. The accident statistics issued by DOSH shows the upright trend of the accidents in the construction sites. This has created the need to conduct a study to identify the factors that influence the occurrence of accidents in construction sites. This study is focusing on the mediation effects of the workers' attitude in the relationship between the OSH management system and the OSH culture.

This first chapter presents the background of the study, development of the construction industry in Sarawak, accidents occurrences in the workplace, problem statement, research questions, research objectives, scope and limitations of the study, the importance of the study and the arrangement of the thesis. The final of this chapter presents a summary of the chapter. The background of the study presents the location where the study is conducted.

1.2 Accident occurrences in the workplace

Accident is a tragedy. It is unpredictable, unplanned, unintended and uncontrolled events. It is an undesired event which may cause ill-health, serious injury or even death, damage of property and also affect the financial due to medical fees and compensation payment. It also may cause lose productivity due to loss of manpower, and also jeopardizing the organisation's reputations. In other words, accident cause direct and indirect cost (Bahari *et al.* 2013, Ferret 2012, Yoon *et al.* 2013, Windapo 2013, Mohd Kamar *et al.* 2014, Subramani & Lordsonmillar 2014, Md Ulang *et al.* 2014, Althaqafi and Elssy 2015).

Construction sites are often associated with extremely high rates of accidents especially involving death. Construction sites are often associated with a very high accident rate. According to International Labour Ordinance (ILO) 2017, in industrialized countries showed an increase of an accident rate in construction sites by 5 to 10 per cent. About 6 accidents involving deaths occurred in every construction site in every developing country. It estimates that almost 6,300 people died every day because of occupational accidents or work-related illness.

The absence of effective OSH management system, hazards cannot be identified, the risk cannot be analysed, and the risk cannot be controlled. Every accident may result in loss of skilful worker, delay of the progress of the project (Liska, Goodloe and Sen (1993), loss of property, compensation pay out, loss of organisation's reputation, and other unwanted cost and loss of productivity (Manu 2013, Ulang *et. al.* 2014). However, workplace accidents are highly dependent on the work practices of an organization. (Hosseinian and Torghabeh 2012, Ferret 2012, Friend and Kohn 2014, de Faria Nogueira *et al.* 2015, and Goh *et al.* 2016).

An example of the classic major accident was in Flixborough in 1987 that killed 28 people and 36 people were seriously injured. Another example that can become a lesson learned is that the collapsed of scaffoldings in Willow Island, West Virginia in the United States in 1978 injured some employees. The accident that occurred in Bhopal India was a terrible workplace accident. From the incident, an estimated 5000 people were killed in just two days. Lastly, the incident of Piper Alpha oil platform in 1988 in the North-East coast of

Scotland. The incident has claimed 167 lives. The incident has been used as a case study by industry players in developing the hazard and risks control in the workplace.

In 2015, the construction industry of Saudi Arabian has recorded 35, 552 injuries which about 51. 35 per cent of total occupational injury. In 2016, the construction industry of Saudi Arabian was recorded 24,760 injuries which about 46.36 per cent of the total occupational injury report. The Saudi Arabian construction industry has recorded highest number of accidents involving serious injury and fatality (Yasir and Saad 2018).

The Health and Safety Commission (HSC) UK (2014), reported that there were 104,000 work-related ill-health cases reported. There were 2.3 million working days lost wherein a total of 1.1 days lost per year. The International Labour Organization (ILO 2017) estimates that almost 6,300 people died every day because of occupational accidents or work-related diseases. It contributes to more than 2.3 million death every year. The construction industry contributed the largest number of accidents among other industries.

1.3 Location of study

Malaysia is consisted of 13 states. Sarawak is located on the third largest island in the world called Borneo. Known as the Land of the Hornbills, it is a unique and diverse gem in terms of its population, culture, geography and history. Sarawak consists of two cities and two districts. The City of Kuching is the state capital of Sarawak and located at south part of Sarawak. The City of Miri is located in the northern part of the state, and two districts Bintulu and Sibu are located in the middle of the state (see figure 1.1).

Sarawak's economy has been transformed in recent years, as the state diversifies away from its traditional reliance on mining, agriculture and forestry. Today, the government is developing the state's infrastructure, high-tech industries and renewable energy sources to create 1.5 million jobs and long-term economic prosperity. The private sector is also playing an important role in building the infrastructures such as residential estates and business centres.

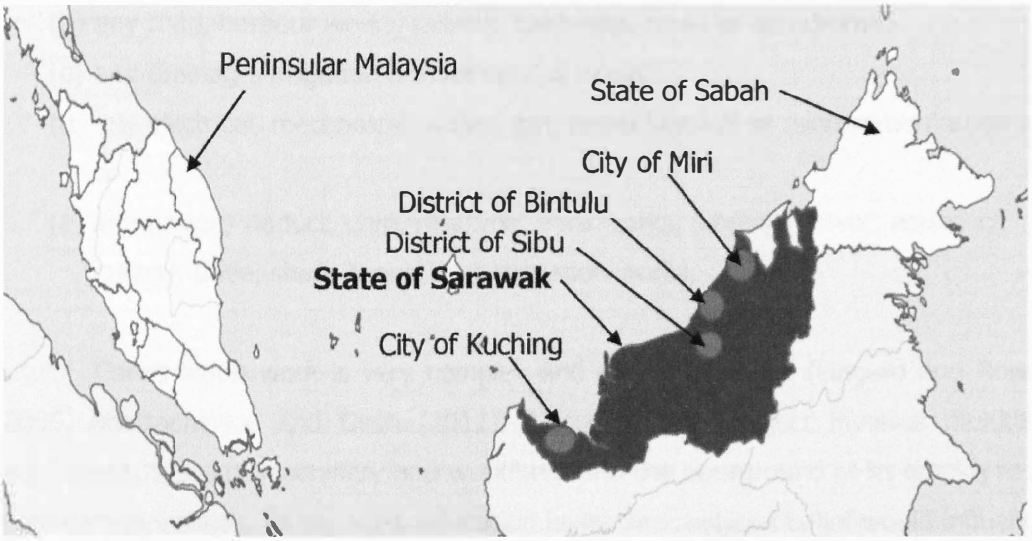

Figure 1.1 : The map of Malaysia.
Source : Google – Map of Malaysia

As Malaysia strives to become a developed nation, Sarawak is not left behind in this endeavour. The construction industry is one of the important industries in achieving the goal. The then Chief Minister of Sarawak Tan Sri Adenan Satem mentioned that Sarawak construction sector would be expected to double its growth to 10 % over the next four years. He attributed the favourable outlook, which was supported by a global rating agency, to ongoing mega-infrastructure and power projects, including the multimillion-ringgit Pan Borneo Highway and other projects in the Samalaju, Bintulu Industrial Park. Adenan said Sarawak targeted annual growth of 6.5 % over the next seven years to realise its vision to become a high-income state by 2030 (The Malaysian Reserve, Monday, April 3rd 2017). Sarawak would be having more construction projects; therefore, Sarawak was chosen for this study.

1.4 Construction industry in Sarawak

The CIDB has defined the terms of construction means as "construction works" means the construction, extension, installation, repair, maintenance, renewal, removal, renovation, alteration, dismantling, or demolition of—

(a) any building, erection, edifice, structure, wall, fence or chimney, whether constructed wholly or partly above or below ground level;

(b) any road, harbour works, railway, cableway, canal or aerodrome;

(c) any drainage, irrigation or river control works;

(d) any electrical, mechanical, water, gas, petrochemical or telecommunication works; or

(e) any bridge, viaduct, dam, reservoir, earthworks, pipeline, sewer, aqueduct, culvert, drive, shaft, tunnel or reclamation works,

Construction work is very complex and most hazardous (Lingard and Rowlinson 2005, Bhattacharjee and Gosh (2011). A construction project involves multitasking, equipment, types of machinery and workforce and the background of its employees from various nationalities, races, ages, education levels and religious belief would influence the OSH practices (Debrah and Ofori 2001). Due to the hazardous nature of the construction, incidents and accidents involving fatalities in the construction sites are always reported high. The construction employees are two to three times more likely to expose to the work risks, get a serious injury, and die on the job compare than the workers of other industry and obviously, construction sites contributed most to the accident statistics. (Bakri *et al.* 2006, and Alhajeri 2011).

Realising that the construction industry is dangerous, therefore the Malaysian government is serious to make the construction sites are a safer workplace for the workers. The industry is also provided with the legislations that the construction players have to comply with namely the Occupational Safety and Health Act (OSHA) 1994 and Construction Industry Development Board Act (CIDBA) 1994. For that purpose, the Department of Occupational Safety and Health (DOSH) has been established to enforce the national OSH law and to monitor the compliance of the contractors to the national OSH law. To help DOSH in monitoring the implementation of OSH law, the Malaysian government has established the Construction Industry Development Board (CIDB) to monitor the development of the contractors and also provide site safety induction training to all construction personnel.

The construction site safety induction training that conducted by the CIDB is to provide the workers with the knowledge of Malaysian OSH law and to increase the knowledge and awareness of the workers about hazards and risks in the construction sites. CIDB also provides free site inspection and audit to contractors called (SHASSICS) to help