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Influencing Factors towards Safety Awareness among Instructors in Selected Public TVET Institutions

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ABSTRACT

The government recently has given dire attention on Technical Vocational Education and Training (TVET) as the target source in providing high-skilled human resources for the nation. Majority of TVET institutions offer diploma and certificate courses involving technical and vocational areas which deemed the teaching and learning sessions to be conducted in workshops and laboratories. Safety awareness is important especially in preventing industrial accident as there are existing hazards within the TVET institutions which could cause the students as well as staff to involve in workplace accidents. This study is a quantitative cross-sectional study conducted to examine the determinants of safety awareness among the staff of selected public skill training institutes (ILKA). Three independent variables namely safety policy, safety & health committee and safety training had been selected whilst safety awareness became the dependent variable. Self-administered questionnaire had been distributed and answered by 118 instructors of 4 ILKA in central, northern and east-coast of Peninsula Malaysia. The results revealed that safety policy and safety training had significantly influenced safety awareness. Whilst, no significant influence found by safety and health committee towards safety awareness. It is suggested that safety training is regularly conducted in order to increase level of safety awareness in ILKA.

KEYWORDS - Occupational safety and health, safety awareness, safety committee, safety policy, safety training

1. INTRODUCTION

Recently, the government of Malaysia has given dire attention on Technical Vocational Education and Training (TVET) as the target source in providing high-skilled human resources to Malaysia's industry [1]. Institut Latihan Kemahiran Awam (ILKA) a type of the TVET public institutions which offers a wide range of related courses such as the Automotive Technology related programmes (Heavy Machinery Mechanics, Motor Vehicle Mechanics, Commercial Vehicle Mechanics, Automotive Paint Sprayer and Automotive Panel Taper) and Civil Technology programmes such as Civil and Structure Supervisor, Landscape Construction, Scaffolding and Tower Crane Operators courses. As ILKA main role is to supply medium to high-skilled labours into the market, the offered courses are deemed to have their practical sessions within the workshops as well as worksites. Such scenario makes ILKA a high risk learning institution where its area consists various hazardous equipment and materials. Being offered programs as such, the laboratories or workshops in TVET institutions including ILKA are equipped with heavy machineries, chemicals, and sophisticated hands-on practical equipment that expose the staff as well as students to various kinds of hazards [2].

Occupational Safety and Health Act 1994 (OSHA 1994) was enacted to ensure workplace safety and health in Malaysia [3]. The Act covers all industrial sectors including the public sectors and statutory bodies. Thus, government TVET institutions such as ILKA is also covered under the Act. OSHA 1994 stated that it is the general duty of the management to ensure the safety and health of staff as well as the students' while working or studying within the institutions' compound. Thus, the management of ILKA is bound to comply with the provision. The salient provisions of OSHA 1994 pertaining the general duties of an employer are including to formulate the safety and health policy, establishing the safety and health committee and to provide OSH related training to the employees.

Some previous researches revealed that most of the accident's victims were not the experienced workers but the fresh young workers [4, 5]. There is also a recommendation that occupational safety has to be exposed at their education stage in order to instil better safety practices among young workers [5]. Thus, the role of ILKA management especially the teaching staff could be consider as vital to promote and instil safety behavior among the students [1].

As previously mentioned, workplace accident has a potential to occur in a TVET institution's workshop as well as laboratories. Samsul (2001) reported that two out of 12 Civil Engineering workshops in a public technical university would involve in workplace accidents [6]. Based on the findings, the accident cases were namely shortness of breath caused by poisonous gas, cut by sharp objects, burning, eye injuries, electric shock, hearing loss and broken limbs. Mohd Fairuz (2014), on the other hands, stated that there are several cases of accidents recorded during practical workshops in an advance TVET institutions in 2012 and 2013 [7]. There was a study suggested that safety practice adopted by lecturer is an essential element in safety of laboratory [8]. In addition, Mohd Fairuz also proposed that safety awareness and concern are among the issues that must be discussed in detailed in order to prevent workplace accidents within TVET institutions [7].

Safety awareness could be defined as the own awareness of an individual towards workplace's safety issues [9]. Safety awareness is important to be addressed in workplace as the lack of awareness can affect safety performance [10]. Safety awareness is also found to be the predetermine of safety behaviour, where safety behavious is the main predictor towards workplace accident. Choi et al. (2016) believe that the increasing of safety awareness among workers could improve their safety behaviour [11]. Sun et al. (2014) also revealed the same result in their study where safety awareness has directly influence safety behaviour [12]. This finding is supported by [13] who also found that safety awareness influence safety behaviour in the Chinese construction industry. Therefore, it is advocated that ensuring safety awareness among workers could foster safe working behaviour and furthermore decrease work-related accidents.

There are previous researches being conducted on determining the level of safety awareness at workplaces in Malaysia. Yusof (2020) has conducted study among the industrial-based employees in Kuala Lumpur and Penang [14]. The employees perceived the level of safety awareness among their employers was unsatisfactory. Moreover, the respondents stated that their employers had not emphasized on the importance OSH practice, no trainings were given as well as no OSH enforcement were performed. Nurul Asmad (2015) conducted a study to examine the factors that influence the level of awareness of safety and health among a factory's employees in Kedah [15]. The findings revealed that employee commitment, safety training and participation in "Safety and Health Committee" has a positive significant influence to the level of safety awareness. In TVET higher learning institutions, there were also several previous researches conducted mainly focusing on the students' safety awareness. Wan Sabri (2012) performed such study in a MARA High Skilled Learning Institution in Klang Valley and found that chemical substances handling is the dominant factor that influences safety awareness [16]. Besides, [17] in her study aimed to identify the level of awareness of safety practices in engineering laboratories for diploma and degree students from Universiti Tun Hussein Onn Malaysia (UTHM) and the results indicated that the levels of awareness were satisfactory. Furthermore, there were also empirical studies conducted to determine the safety awareness level among the teaching staff in TVET institutions. Mohd Fail (2009) conducted a cross-sectional study which the purpose is to identify the level of awareness among Universiti Teknologi Malaysia (UTM) staff towards work safety at the workplace [18]. Using a self-administered questionnaire, the analysis of results showed that UTM staff had a high level of awareness towards workplace safety based on their overall mean score of 3.95 (Davis, 1971). Previously, [19] has also conducted similar study towards engineering lecturer in UTM and the result indicated the high level of safety awareness with the mean score of 3.97. On the other hands, [7] conducted a study among 60 lecturers from ADTECs Bate PA hat, Johor. As the result, his study showed that the level of lecturer awareness over safety practice is at high level.

Mohd Fail, (2009) also found that safety policy and safety training committed by the employers are the key factors towards the increasing the level of safety awareness among the workers [18]. Besides safety policy, safety training is also a factor to influence safety awareness. James (1997) found that there was a difference in the level of awareness among forklift drivers who had received safety training as compared to the driver who had not undergo such training [20]. In addition, other scholar also revealed that training on work procedures affects the level of awareness on OSH among employees [21-25]. Similarly, there are studies which found that training on safe work procedures is significant in increasing the level of safety awareness [26, 27].

Section 30 (1), OSHA 1994 provided that every employer shall establish a safety and health committee if there are 40 or more employees within an organisation. The main function of the committee is to regularly review the safety measures taken to ensure the occupational safety and health, to investigate the accidents as well as to raise the employer's attention towards the matters which is unsafe and could cause injury and health risk. Safety committee was also found to have a significant impact towards the level of safety awareness among the employees [28]. Meanwhile, [27] in their study found that an enhanced role of the safety and health committee at all levels could enhance the level of safety awareness among the students of the Department of Civil Engineering in POLISAS, Pahang. Wan Rosmini (2000), similarly, had found that a strengthened safety and health committee could provide greater safety and health awareness at a workplace [29].

In terms of theory, this study applies Cooper's Reciprocal Model which includes three main elements that correlate with each other as well as contribute to the success of safety awareness development. This model illustrates the relationship between the individual, work and organisation. For individual elements, it's requires self-commitment, high level of competence, safety knowledge, commitment to organization and job satisfaction in carrying out tasks. Besides, Work elements can be translated into safe and conducive working environment, safe work procedures, safe and healthy environment including the highly functioning safety and health committee. Meanwhile, organizational elements include management commitment towards safety (safety policy), management action towards instilling safety culture, bilateral communication between management and employees (actively functioning of safety committee), a sufficient allocation resource in improving safety and health level and organizational readiness in the event of an emergency event. The combination of these three elements can instil and nurture safety awareness in a more precise direction. Fig. 1 illustrates Cooper Reciprocal Model.

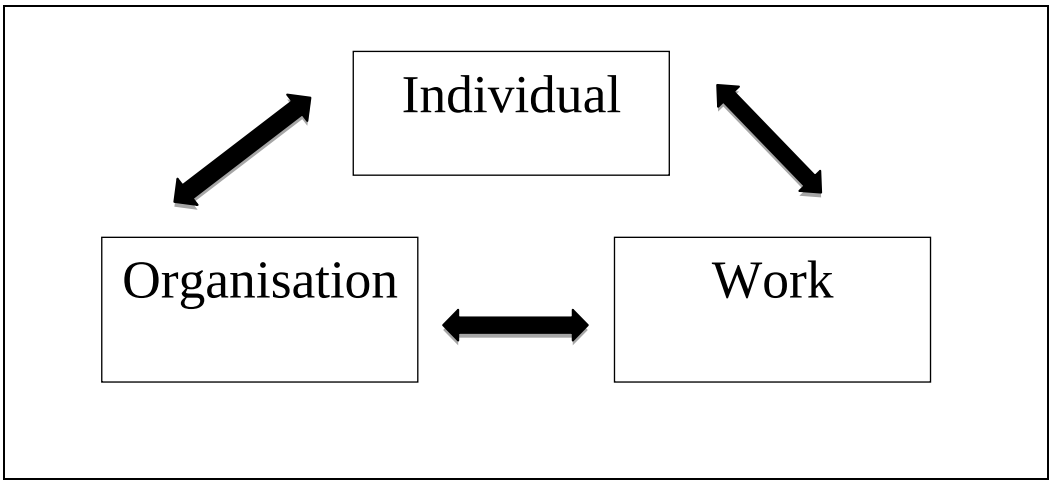

Figure 1: Cooper Reciprocal Model

In a nutshell, previous scholar has found that safety policy, safety training and safety and health committee are factors to influence safety awareness, including in technic and vocational education sector. Therefore, this study aims to investigate the level of safety awareness among the ILKA staff as well as the influence of safety policy, safety training and safety and health committee factors towards safety awareness among ILKA teaching staff in Peninsula Malaysia.

This research is expected to contribute to the body of knowledge in terms of the extension of theoretical model above. The additional should be include under the organisational element as well as work element. In addition, there is lack of research conducted to specifically determine the relationship between the role of safety & health committee in determining the safety awareness of workers. Especially in Malaysia context, safety and health committee is a vital element of OSH compliance as a specific regulation has been passed thereof under the OSHA 1994, which stipulates all the necessary functions. However, research on determining the contribution of safety and health committee towards the level of OSH at workplaces. Thus the finding of this study is expected to contribute towards extension on the existing framework. Besides, the results of this research also would contribute to the policy makers (government) as well as the management of ILKA in order to improve their level of OSH.

2.METHOD

This study is a hypotheses testing quantitative research applying a cross-sectional design. A self-administered questionnaire and the items representing the independent and dependent variables were constructed based on previous researches. Subsequently, descriptive and inferential analyses were performed to determine the relationship between the independent variables and the dependent variables.

2.1 Research Framework

Research framework is a collection of interrelated concepts and shows the relations between the independent variables and the dependent variable [30]. Dependent variable, also known as outcome variable can be predicted and explained. This research framework is adapted from previous studies [19, 18]

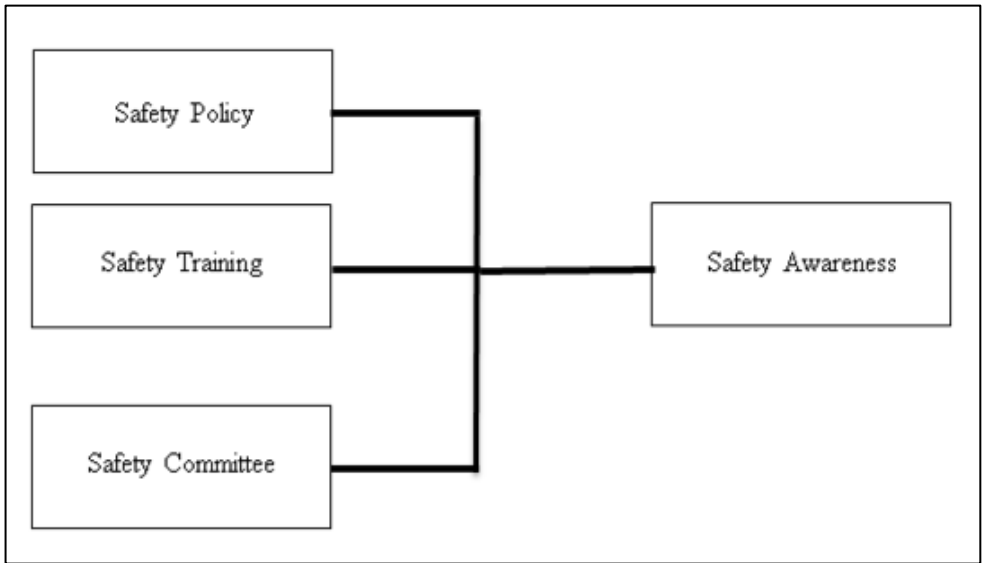

Figure 2: Research Framework

As depicted in Fig. 2, 'safety training', 'safety policy' and 'safety committee' were the independent variables whilst the dependent variable was safety awareness. Based on the research framework, the alternative hypotheses of the research have been developed as follows:

H_1: There is a high level of Safety Awareness among the teaching staff in ILKA
H_2: There is a significant influence of Safety Policy on Safety Awareness among the teaching staff in ILKA
H_3 : There is a significant influence of Safety Training on Safety Awareness among the teaching staff in ILKA
H_4: There is a significant influence of Safety Committee on Safety Awareness among the teaching staff in ILKA

2.2 Sampling Design, Population & Sample Size

The survey was then being conducted among the teaching staff in 4 ILKA each in central, northern and east-coast region in Peninsula Malaysia. The reason for choosing these ILKA is due to the similar courses offered, thus the workplaces consists similar hazards and safety issues. The sample size was determine according to [31] which stated that minimum sample size for regression analysis is 104 plus the number of variables. Thus, for present research, the minimum sample size is 108 (104+4). Sample represents a population and can be calculated using a formula with 5% of margin error and 95% confidence level and it is mostly used in all research of social sciences [32].

2.3 Data Collecting Procedure

A list of total 340 teaching staff's name and contact (email or mobile phone number) from the involved ILKA was obtained from the respective administration personnel. Subsequently, for each staff, based on the obtained list, was labelled by specific numbering. Next, 126 respondents were randomly chosen based on random number table developed by [33]. A 'random number table' is a series of digits (0 to 9) arranged randomly through the rows and columns. After selecting the respondents using random number table, the 126 selected respondents were being approached via email or "WhatsApp" to answer the questionnaire [34]. From the total of 126 selected teaching staff, only 118 answered the survey (93.65%).

2.4 Research Instrument

A set of self-administered questionnaire consists of items to measure the dependent variable and the independent variable was prepared and used as the research instrument. All the questionnaire items were designed based on Likert scale from 1(strongly disagree) to 5 (strongly agree), adopted from previous studies [7, 18, 19] as well as Occupational Safety and Health Act 1994.

2.4.1 Research Instrument Face and Content Validity

A cross-sectional questionnaire survey was designed and divided into three sections namely Section A: Respondent's Demographic, Section B: Safety Policy, Safety Training and Safety & Health Committee; and Section C: Safety Awareness. The sample of questionnaire were then being posted to several experts of OSH for their comments and suggestions for improvement. The selected experts were including DOSH officers, experienced safety and health officers (SHO) as well as academicians lecturing OSH related courses. Some modifications on the questionnaire items were made based on the expert comments and subsequently it was reviewed by a language expert to obtain face validity.

2.4.2 Research Instrument Reliability

Post to obtaining the content and face validity, a pilot study has been conducted amongst ILKA instructors in Negeri Sembilan, Malaysia involving 55 respondents. The purposes of the pilot testing were to determine whether the questionnaire was reliable, clear and convey the same meaning to all respondents; to determine whether the questionnaire items were properly designed and in the right sequence; to determine the length and time needed to complete the questionnaire; and to determine whether the language used was appropriate and acceptable by the respondents. The results of the pilot study are as follow:

Table 1: Reliability (Pilot) Study

Variables	Number of items	Cronbach's alpha
Safety Awareness	4	0.756
Safety Training	4	0.829
Safety Policy	5	0.890
Safety Committee	4	0.905

Based on alpha value determined, the instrument could be accepted as the value was greater than 0.6 [35]. Thus, it could be said that the instrument for this research is reliable and all of the items possessed internal consistency.

2.5 Data Analyses

The data collected for this research would then be analyse using the Statistical Package for Social Science (SPSS) 2.1 version. Prior to further analyses, several preliminary data analyses were conducted to determine the normality, validity, multicollinearity, as well as the Cronbach Alpha value. Furthermore, descriptive and inferential analyses is would be conducted to determine the research objectives.

3. RESULTS AND FINDINGS

This section presented the result of normality, reliability and factor analysis for preliminary data analyses. Subsequently, the demographic background of the respondents is presented. Furthermore, descriptive analysis method namely frequency, percentage and mean was conducted to explain the level of safety awareness and inferential analyses namely correlation and regression analyses were applied to determine the relationship between the independent as well as dependent variables.

3.1 Normality Test

Hair et al. (2010) defined normality as the extent of data's distribution which found to be compatible to a normal distribution [35]. Several researchers [36, 37] suggested that the normality of data is examined through skewness and kurtosis. The value of skewness and kurtosis between -2 and 2 is consider acceptable as normal distribution [38-40]. Prior to normality analysis. Mahalanobis distance was computed and three (3) outlier had been removed based on chi-square table. Subsequently, normality test has been performed and the result is portrayed as Table 2.

Table 2: Skewness & Kurtosis

Variable	Skewness	Kurtosis
Safety Policy	0.205	-0.563
Safety Training	-0.218	-0.405
Safety Committee	-0.418	1.238
Safety Awareness	-0.332	-1.164

Based on the results in Table 2, it could be concluded that the obtained data are normally distributed.

3.2 Factor Analysis and Reliability

Prior to conducting further analyses, the research instrument need to be verified through validity and reliability test. For testing the construct validity, this research applied factor analysis [41]. In order to determine the accuracy of all items and scales, factor analysis was done for independent variables, particularly, safety policy, safety training and safety committee as well as the dependent variables namely safety awareness. Hair et al. (2010) suggested that 50 samples is the minimum acceptable number to enable the conducting of factor analysis [35]. In addition, [35] recommended that the factor loadings in the range of 0.30 to 0.40 are considerably accepted, however value more than 0.50 would be considered very significant. This study took the cut-off point of 0.55 as the value of the factor loading as suggested by [35] since the number of the respondents in this study is 118. It means that value below 0.55 is deleted. Subsequently, other criteria that should be followed is Kaiser-Meyer-Olkin (KMO) which value should be greater than 0.50 as a minimum value [39].

In addition, communality should be considered with regard to understand to what extent the items be able to explain the factor. Hair et al. (2010) suggested that communality as "total amount of variance an original variable share with all other variables included in the analysis" [35]. Mundfrom et al. (2005) proposes 3 (three) categories regarding communality assessment [42]. The value of all communalities in ranged 0.60 till 0.80 is considered high communality, 0.20 till 0.80 is considered wide communality and 0.20 and 0.40 is considered as low communality.

Present study also measures the reliability of instruments using Cronbach's Alpha to confirm the reliability of the questionnaire's items. According to [43], it is recommended that the value of accepted Cronbach's Alpha value is more than 0.6.

3.2.1 Factor Analysis for Safety Policy

Based on the value of Kaiser-Meyer-Olkin (KMO), the validity of this variable is 0.840, which more than 0.50 and considered acceptable. The result for KMO and Bartlett's Spherical Test for 'safety policy' is depicted in Table 3.

Table 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.840
Bartlett's Test of Sphericity	Approx. Chi-Square	201.831
	df	10
	Sig.	.000

Furthermore, anti-images test was conducted and the results are as depicted in Table 4. Based on the table, it is shown that the MSA number is obtained from anti Image Matrices (Anti Image Correlation), which is the correlation number marked ([a]). The MSA statistics indicate that the correlations among the individual items are strong enough to suggest that the correlation matrix is factorable. It can be seen from the table that all items met with the MSA requirement which is above 0.5, so that the items for this variable in are feasible for further factor analysis.

Table 4: Anti-image Matrices

		Q7Policy	Q8Policy	Q9Policy	Q10Policy	Q11Policy
Anti-image Covariance	Q7Policy	.546	-.180	-.134	-.103	-.017
	Q8Policy	-.180	.513	-.130	-.077	-.096
	Q9Policy	-.134	-.130	.468	-.104	-.187
	Q10Policy	-.103	-.077	-.104	.713	-.055
	Q11Policy	-.017	-.096	-.187	-.055	.642
Anti-image Correlation	Q7Policy	.833[a]	-.341	-.265	-.166	-.028
	Q8Policy	-.341	.834[a]	-.266	-.127	-.167
	Q9Policy	-.265	-.266	.812[a]	-.181	-.342
	Q10Policy	-.166	-.127	-.181	.900[a]	-.081
	Q11Policy	-.028	-.167	-.342	-.081	.849[a]

Note; Measures of Sampling Adequacy (MSA)

Table 5: Results for Factor Analysis

Item	Factor 1	Communalities
Q7	0.792	0.628
Q8	0.818	0.670
Q9	0.845	0.714
Q10	0.686	0.470
Q11	0.723	0.522
Cronbach Alpha		0.827
Eigen Value		3
Percentage Variance (100%)		60.01

This study took the cut-off point of 0.55 as the value of the factor loading as suggested by [35]. Based on results expressed in Table 5, all items for this variable are accepted. For this variable, 1 (one) factor is produced, with the eigenvalue of 3 and the communalities for all items range from 0.470 – 0.714 which considered as wide communalities [42]. Regarding Cronbach alpha of variable, this variable has 0.827 which considered as the accepted value for further analysis.

3.2.2 Factor Analysis for Safety Training

Based on the value of Kaiser-Meyer-Olkin (KMO), the validity of this variable is 0.694, which more than 0.50 and considered acceptable [39]. The result for KMO and Bartlett's Spherical Test for 'safety policy' is depicted in Table 6.

Table 6: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.694
Bartlett's Test of Sphericity	Approx. Chi-Square	76.985
	df	6
	Sig.	.000

Furthermore, anti-images test was conducted and the results are as depicted in Table 7. It can be seen from the table that all items met with the MSA requirement which is above 0.5, so that the items for this variable in are feasible for further factor analysis.

Table 7: Anti-image Matrices

		Q13Training	Q14Training	Q15Training	Q16Training
Anti-image Covariance	Q13Training	.731	-.278	-.016	-.116
	Q14Training	-.278	.627	-.233	-.123
	Q15Training	-.016	-.233	.783	-.135
	Q16Training	-.116	-.123	-.135	.832
Anti-image Correlation	Q13Training	.681[a]	-.410	-.021	-.149
	Q14Training	-.410	.648[a]	-.332	-.170
	Q15Training	-.021	-.332	.715[a]	-.167
	Q16Training	-.149	-.170	-.167	.793[a]

Note; Measures of Sampling Adequacy(MSA)

Based on results expressed in Table 8, all items for this variable are accepted. For this variable, 1 (one) factor is produced, with the eigenvalue of 2.085 and the communalities for all items range from 0.427 – 0.673 which considered as wide communalities [42]. Regarding Cronbach alpha of variable, this variable has 0.685 which considered as the accepted value for further analysis.

Table 8: Factor Analysis Result

Item	Factor 1	Communalities
Q13	0.721	0.520
Q14	0.820	0.673
Q15	0.682	0.466
Q16	0.653	0.427
Cronbach Alpha		0.685
Eigen Value		2.085
Percentage Variance (100%)		52.11

3.2.3 Factor Analysis for Safety Committee

Based on the value of Kaiser-Meyer-Olkin (KMO), the validity of this variable is 0.716, which more than 0.50 and considered acceptable [39]. The result for KMO and Bartlett's Spherical Test for 'safety policy' is depicted in Table 9.

Table 9: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.716
Bartlett's Test of Sphericity	Approx. Chi-Square	128.347
	df	6
	Sig.	.000

Furthermore, anti-images test was conducted and the results are as depicted in Table 10. It can be seen from the table that all items met with the MSA requirement which is above 0.5, so that the items for this variable in are feasible for further factor analysis.

Table 10: Anti-image Matrices

		Q23Committee	Q24Committee	Q25Committee	Q26Committee
Anti-image Covariance	Q23Committee	.677	-.228	-.107	.031
	Q24Committee	-.228	.452	-.165	-.258
	Q25Committee	-.107	-.165	.709	-.068
	Q26Committee	.031	-.258	-.068	.638
Anti-image Correlation	Q23Committee	.739[a]	-.412	-.155	.047
	Q24Committee	-.412	.656[a]	-.292	-.481
	Q25Committee	-.155	-.292	.824[a]	-.101
	Q26Committee	.047	-.481	-.101	.707[a]

Note; Measures of Sampling Adequacy(MSA)

Based on results expressed in Table 11, all items for this variable are accepted. For this variable, 1 (one) factor is produced, with the eigenvalue of 2.338 and the communalities for all items range from 0.525 – 0.776 which considered as wide communalities [42]. Regarding Cronbach alpha of variable, this variable has 0.761 which considered as the accepted value for further analysis.

Table 11: Factor Analysis Result

Item	Factor 1	Communalities
Q23	0.724	0.525
Q24	0.881	0.776
Q25	0.734	0.538
Q26	0.738	0.544
Cronbach Alpha		0.761
Eigen Value		2.338
Percentage Variance (100%)		59.60

3.2.4 Factor Analysis for Safety Awareness

Based on the value of Kaiser-Meyer-Olkin (KMO), the validity of this variable is 0.716, which more than 0.50 and considered acceptable [39]. The result for KMO and Bartlett's Spherical Test for 'safety policy' is depicted in Table 12.

Table 12: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.673
Bartlett's Test of Sphericity	Approx. Chi-Square	98.508
	df	6
	Sig.	.000

Furthermore, anti-images test was conducted and the results are as depicted in Table 13. It can be seen from the table that all items met with the MSA requirement which is above 0.5, so that the items for this variable in are feasible for further factor analysis.

Table 13: Anti-image Matrices

		Q12Awareness	Q17Awareness	Q22Awareness	Q27Awareness
Anti-image Covariance	Q12Awareness	.628	-.275	-.080	-.176
	Q17Awareness	-.275	.608	-.229	.071
	Q22Awareness	-.080	-.229	.673	-.201
	Q27Awareness	-.176	.071	-.201	.818
Anti-image Correlation	Q12Awareness	.685[a]	-.444	-.123	-.246
	Q17Awareness	-.444	.633[a]	-.358	.101
	Q22Awareness	-.123	-.358	.716[a]	-.271
	Q27Awareness	-.246	.101	-.271	.660[a]

Note; Measures of Sampling Adequacy (MSA)

Table 14: Factor Analysis Result

Item	Factor 1	Communalities
Q12	0.799	0.639
Q17	0.780	0.608
Q22	0.778	0.605
Q27	0.584	0.341
Cronbach Alpha		0.713
Eigen Value		2.193
Percentage Variance (100%)		54.84

Based on results expressed in Table 14, all items for this variable are accepted. For this variable, 1 (one) factor is produced, with the eigenvalue of 2.193 and the communalities for all items range from 0.341 – 0.6739 which considered as wide communalities [42]. Regarding Cronbach alpha of variable, this variable has 0.713 which considered as the accepted value for further analysis.

3.3 Multicollinearity Test

Hair et al. (2017) recommended multicollinearity test before conduct the hypothesis testing analysis [41]. This is because if two independent variables are correlated strongly, it is impossible to determine which of the two independent variables would explain the variance in the dependent variable. Hair et al. also determined that the minimum cut-off value is 0.20, whilst the maximum accepted cut-off value for variance inflation factor (VIF) is 5. The VIF values are summarised in Table 15.

Table 15: VIF Values

Variables	VIF
Safety Policy	2.037
Safety Training	1.962
Safety Committee	1.525

In addition, Fig. 3 and 4 illustrated the Normal P-P Plot of Regression as well as the Scatter Plot.

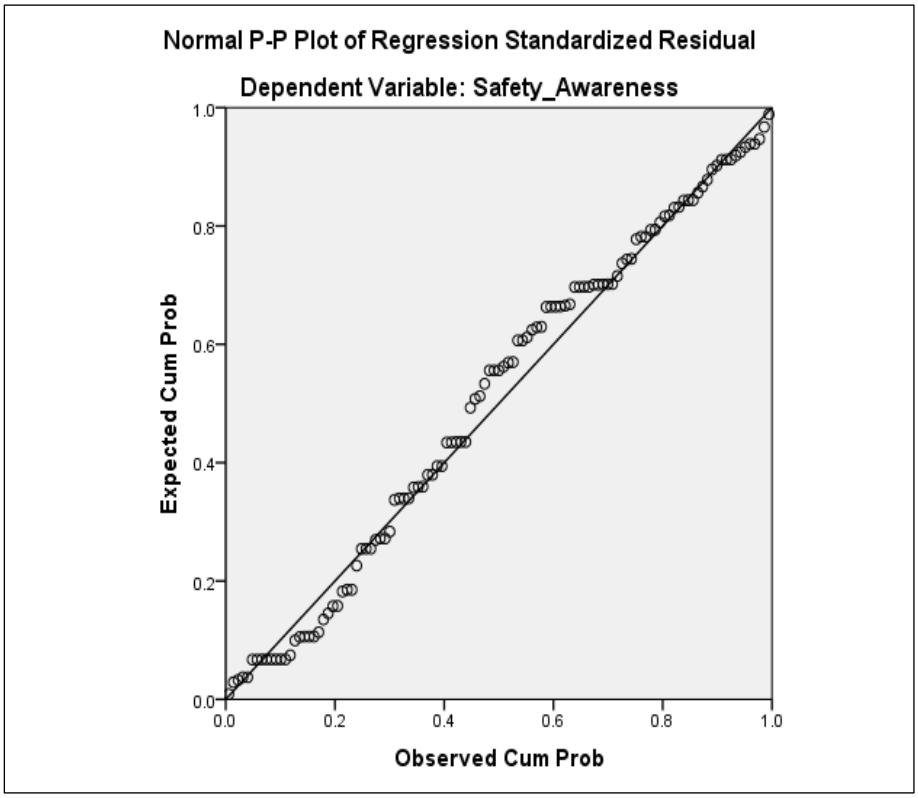

Figure 3: Normal P-P Plot

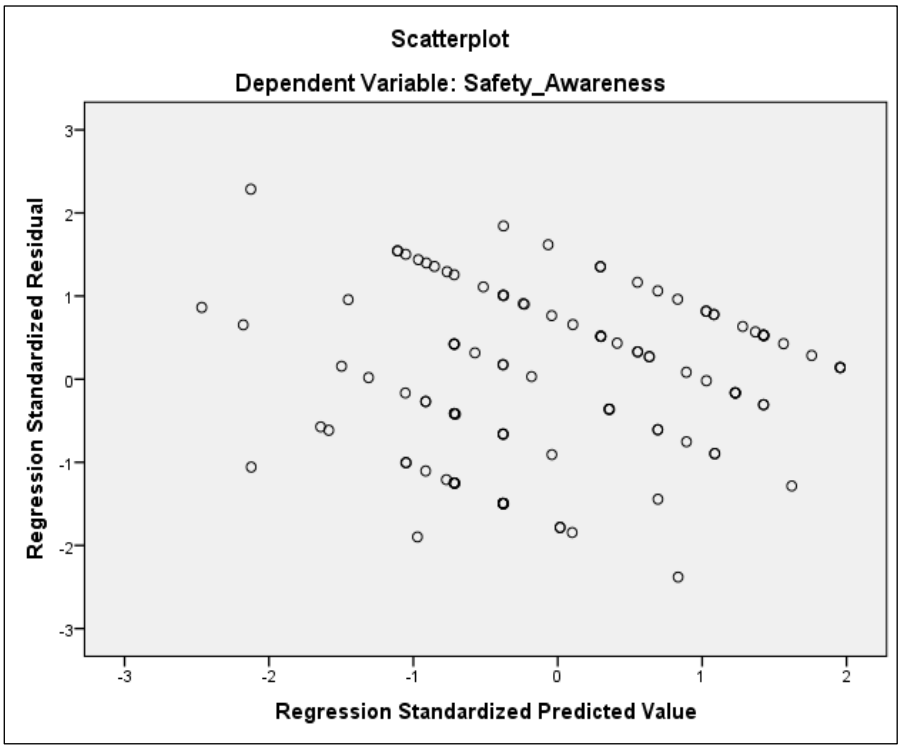

Figure 4: Scatter Plot

Based on these results, it could be said that there is no violation of the multicollinearity assumption.

3.4 Respondents' Demographic Profiles

Table 16 shows that 63.5% of the respondents are male and females are 36.5%.The respondents whom are aged between 18 to 30 years old are 19 people (16.5%), 31-40 years old are 58 people (50.4%), 41-50 years old are 26 (22.6%) and the remaining respondents are age 50 and above . The data also revealed that 21 of the respondent are from Civil Technology department, 37 from Automotive Technology, 10 from Advanced Diploma department and the remaining 47 respondents are from other departments.

Table 16: Demographics Background of Respondents

	Variables	Frequency	Percentage
Gender	Male	73	63.5
	Female	42	36.5
Age	18 – 30 years old	19	16.5
	31 – 40 years old	58	50.4
	41 – 50 years old	26	22.6
	51 and above	12	10.4
Department	Civil Technology	21	18.3
	Automotive Technology	37	32.2
	Advanced Diploma	10	8.7
	Others	47	40.9
Service Tenure	5 year & below	39	33.9
	6-10 years	30	26.1
	11-15 years	33	28.7
	16 years & above	13	11.3
Position Level	Assistant Officer	8	7
	Senior Assistant Officer	58	50.4
	Officer	29	17.4
	Others	20	11.5
	Total	115	100

In terms of tenure, majority of the respondents have served to their institutions for 5 years and below which is 39 (33.9%), 30 respondents (26.1%) have served between 6 - 10 years, 33 respondents (28.7%) have served for 11 - 15 years, and 13 (11.3%) of the respondents have served for 16 years and above. On the other hands, 58 of them are ranked 'Senior Assistant Officer' (50.4%), 29 (17.4%) are 'Officer', 8 (7%) hold the position of 'Assistant Officer' while 20 of the respondents hold other job positions.

3.5 Descriptive Analysis for Dependent Variables

The descriptive analysis results for the dependent variable is as expressed in Table 17. Based on the result, the level of safety awareness among the ILKA staff are at the high-level. Davis (1971) had determined that the level of the variable is considered high when the mean score is 3.68 – 5.00, whereas the score for moderate level is 2.34 – 3.67 and low level (1.00 – 2.33) [44].

Table 17: Descriptive Statistics

	N	Mean	Std. Deviation
Safety Awareness	115	4.5	.37

3.6 Correlation Analysis

Table 18 expressed the Pearson's correlations analyses conducted for this research. The results found that all variables have positive and significant relationship ($p<0.05$). The highest value of Pearson Correlation found in the relationship is between safety policy and safety training with r value of 0.676. The weakest relationship was found between safety awareness and safety & health committee ($r=0.344$). The strength of relationship between variables were determined from decision rules of Kerlinger [45]. Table 18 shows the measurements of the relationship used in Pearson Correlation.

Table 18: The Strength of Relationships between the Dependent and Independent Variables

r value	Relationships
0.7 and above	strong
0.4 to 0.69	moderate
0.39 and below	weak

Moreover, the relationship between the independent variables and dependent variable was found to have moderate relationship [46] except for Safety & Health Committee-Safety Awareness relationship which found to have a weak relationship.

Table 19: Correlation Analysis

	Safety Awareness	Safety Training	Safety Policy	Safety Committee
Safety Awareness	1	.565**	.519**	.344**
Safety Training	.565**	1	.676**	.524**
Safety Policy	.519**	.676**	1	.549**
Safety Committee	.344**	.524**	.549**	1

Notes; **Correlation is significant at the 0.01 level (2-tailed)

3.7 Regression Analysis

Subsequently, multiple regression analysis was conducted to identify the significance of the predictor as well as to determine how strong the independent variables would predict the dependent variable [47]. According to [36], multiple regression allows more sophisticated correlation among variable as compared to Pearson Correlation. Table 20 shows the result which indicates the influence by independent variables towards safety compliance.

Table 20: Model Summary A

Model	R	R Square Adjusted R Square	Std. Error of the Estimate
1	.595	.354	.2994

Notes; Predictors: Policy, Training, Committee, Dependent Variable: Safety Awareness

As depicted in Table 20, the value of R square is shown as 0.354, which indicated the variable accounted for 35.4% of the variance in safety awareness while the remainder is explained by other variables.

Table 21: Beta Coefficient A

Variable	Unstandardized coefficients Beta	Std.Error	Standardized coefficients Beta	t	Sig
Safety Policy	0.216	0.093	0.254	2.333	0.021**
Safety Training	0.296	0.080	0.394	3.685	0.000*
Safety & Health Committee	-0.001	0.067	-.002	-0. 19	0.985

Notes; Dependent variable: Safety Awareness, **Correlation is significant at the 0.05 level (2-tailed), * Correlation is significant at the 0.01 level (2-tailed)

Table 21 shows the result which indicates whether there is significant influence by the independent variables towards safety awareness. Safety training owned the highest influence towards safety awareness with beta value of 0.394. Subsequently, safety policy held the second strongest influence towards safety awareness with beta value of 0.254. Meanwhile, there was no significant influence found on safety & health committee towards workers' safety awareness.

4. CONCLUSION

The results revealed that the level of awareness of ILKA staff towards occupational safety and health is high, with the mean score of 4.5. In addition, Pearson correlation analysis also determined the positive relationship between safety training, safety policy, safety & health committee and safety awareness among the staff. Based on the multiple regression analysis, it concluded the 35.4% of the independent variables explained the variance of safety awareness; with safety policy and safety training have significant influence towards safety awareness. Whilst, no significant influence is found to be exist by safety committee towards safety awareness among the ILKA staff. Table 22 summarised the results including the acceptance and rejection of research's hypotheses.

Table 22: Summary of Research Results

Hyopotheses	Results
H_1 : There is a high level of Safety Awareness among the teaching staff in ILKA	Accepted
H_2 : There is a significant influence of Safety Policy on Safety Awareness among the teaching staff in ILKA	Accepted
H_3 : There is a significant influence of Safety Training on Safety Awareness among the teaching staff in ILKA	Accepted
H_4 : There is a significant influence of Safety Committee on Safety Awareness among the teaching staff in ILKA	Rejected

Safety awareness among the teaching staff in the selected ILKA is found to be high. It is mainly because of the regular inspections and workplace safety audits performed by the Department of Occupational Safety and Health (DOSH) towards the public higher learning institutes. As ILKA own several types of hazardous machinery which need approval process, DOSH officers shall regularly visit the institutes for conducting initial as well as annual inspections. Moreover, there is also a specific subjects named "Workshop Safety Practice" that must be taught by the teaching instructors towards the students in their first semester. This finding is supported by [48] who suggested that various safety related program is essential to increase safety and health awareness at workplaces.

Besides the level of safety awareness, multiple regression analysis found that safety policy and safety training have significant influence towards safety awareness among the ILKA teaching staff. This results matched with previous researchers [18, 19, 49]. The strongest variables which influence safety awareness is safety training. Training towards safety awareness. Previous researches also had determined the contribution of safety training towards the safety awareness among workers [20, 50, 51]. In addition, DOSH officers are always being invited by the management of ILKA throughout Malaysia to conduct speeches and safety workshops in regular basis. Taking the state of Negeri Sembilan, Malaysia as an example, DOSH officers will be invited to deliver talks pertaining occupational safety and health towards ILKA trainees in every beginning of a new semester.

On the other hands, the function of safety and health committee is found as not significantly predicting the safety awareness among the ILKA teaching staff. Based on the interview with several teaching instructors as well as administrative staff in the selected ILKA, it could be concluded that despite the establishment of safety and health committee in their workplaces, the committee does not actively perform their functions. The committee only performs the minimum functions according to the provisions of law namely to conduct safety committee meeting as well as workplace inspection. Based on the statement by [52], safety and health committee could be a useful platform and instrument in realising the practice of OSH within a workplace. A research conducted by [53] has revealed the significant influence of safety and health committee towards safety awareness among workers in a logistic company as that safety committee is actively performing all functions designated by law, regulation and standards.

In a nutshell, this research concluded that safety policy and safety training have significant influence towards safety awareness among the ILKA teaching staff. Whereas, the role of safety committee towards influencing safety awareness amongst staff in Malaysia's ILKA was not significant.

For delimitation of study, present research was only conducted involving teaching staff in selected ILKA. As a case study, the results could not be generalized to all ILKA as well as other TVET providers throughout the country. For future research, it is recommended that this study is replicated by other ILKA as well as TVET institutions all over Malaysia.

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REFERENCES

1. S. S. Zulkifly, K. Shanmugam, N. Azizan, and N. H. Hasan, Lecturers' safety leadership and its influence towards students' safety behavior: A case study in Politeknik Port Dickson. *4th Conference on Business Management*, the Gurney Resort Hotel & Residences Penang, Malaysia, 2017.
2. N. Che Juan, *Tahap kesediaan pelajar kejuruteraan politeknik terhadap keselamatan di dalam bengkel*,

doctoral diss., Universiti Tun Hussein Onn Malaysia, Johor, Malaysia, 2012.
3. B. Ismail, *Self-arrangements in occupational safety and health management* (Kuala Lumpur, McGraw-Hill, 2002).
4. K. Koo, M. Nurulazam, S. Rohaida, T. Teo, and Z. Salleh, Examining the potential of safety knowledge as extension construct for theory of planned behaviour: Explaining safety proactices of young adults at engineering laboratories and workshops, *Procedia-Social and Behavioral Sciences*, 2014, 1513-1518.
5. P. A. Schulte, C. M. Stephenson, A. H. Okun, J. Palassis, and E. Biddle, Integrating occupational safety and health information into vocational and technical education and other workforce preparation programs, *American Journal of Public Health*, *95(3)*, 2005, 404-411.
6. A. R. Samsul, *Perkaitan antara pengurusan berkesan dari segi kesediaan pengurusan makmal dengan peningkatan ciri-ciri keselamatan makmal*, Master diss., Kolej Universiti Teknologi Tun Hussein Onn, Johor, Malaysia, 2001.
7. T. Mohd Fairuz, *Keperihatinan pensyarah terhadap amalan keselamatan bengkel di adtec Bate PA hat*, master diss., Fakulti Pendidikan Teknikal dan Vokasional, Universiti Tun Hussein Onn Malaysia, Johor, Malaysia, 2014.
8. A. Saiful, N. A. Hassan, E. M. Mazlan, F. A. Patakor, and Z. Salleh, A case study on the efficacy of technical laboratory safety in polytechnic, *International Journal of Social, Behavioral, Economic, Business and Industrial Engineering, 5(5)*, 2011.
9. F. Kiani, and M. R. Khodabakhsh, Promoting individual learning for trainees with perceived high helplessness: Experience of a safety learning program, *Iranian Journal of Health Sciences, 14(2)*, 2014, 60-64.
10. S. F. Sarkam, L. S. Shaharuddin, B. M. Zaki, N. R. N. M. Masdek, N. J. A. Yaacob, and M. Mustapha, Factors influencing safety performance at the construction site, *International Journal of Academic Research in Business and Social Sciences, 8(9)*, 2018, 1057-1068.
11. B. Choi, S. Ahn, and S. H. Lee, Role of social norms and social identifications in safety behaviour of construction workers. I: Theoretical model of safety behaviour under social influence, *Journal of Construction Engineering and Management, 10(1061)*, 2016, 1943-7862.
12. J. Sun, S. Yan, and C. Y. Du, Empirical study on the effect of safety atmosphere on the safety performance in construction enterprises, *Journal of Safety and Environment*, *14(2)*, 2014, 60-64.
13. M. Wang, J. Sun, H. Du, and C. Wang, Relations between safety climate, awareness, and behavior in the Chinese construction industry: A hierarchical linear investigation. *Advances in Civil Engineering*, 2018.
14. R. M. Yusof, A. R. Abdul Rahim, and S. Kamarudin, S. Constructive dismissal: Lesson learnt from Malaysian industrial court cases, *International Journal of Academic Research in Business and Social Sciences, 10(11)*, 2020, 469-485.
15. C. H. Nurul Asmad, *Faktor-faktor yang mempengaruhi tahap kesedaran keselamatan dan kesihatan pekerjaan dalam kalangan pekerja-pekerja di ACM Sdn. Bhd. Bukit Kayu Hitam*, Master diss., Kolej Perniagaan, Universiti Utara Malaysia, Kedah, Malaysia. 2015.
16. W. I. Wan Sabri, *Kesedaran keselamatan dalam kalangan pelajar kolej kemahiran tinggi mara di Lembah Kelang*, master diss., Fakulti Kejuruteraan Teknikal dan Vokasional, Universiti Tun Hussein Onn Malaysia, Johor, Malaysia, 2012.
17. S. Nur Fazreen, *Kesedaran terhadap amalan keselamatan dalam kalangan pelajar di makmal kejuruteraan UTHM*, master diss., Universiti Tun Hussein Onn Malaysia, Johor, Malaysia, 2013.
18. A. Mohd Fail, *Tahap kesedaran staf UTM terhadap keselamatan pekerjaan di makmal dan bengkel kejuruteraan.* master diss., Fakulti Pendidikan, Universiti Teknologi Malaysia, Johor, Malaysia, 2009.
19. Durrishah, A. R. Hadmidah, A. Hapriza, Z. Fadilah, J. Rossilah, and M. Syaharizatul Noorizwan, M, *Level of awareness of UTM staff on occupational safety and health at the work place*, diss., Jabatan Pembangunan Sumber Manusia, Fakulti Pengurusan dan Pembangunan Sumber Manusia, Universiti Teknologi Malaysia, Johor, Malaysia, 2004.
20. W. C. James, *Descriptive analysis of forklift fatalities and powered industrial vehicle injuries and a case-control of the characteristic of the vehicle, driver and environment* (The Johns Hopkins University, 1997).
21. B. L. Weidner, A R. Gotsch, C. D. Delnevo, T. B. Newman, and B. McDonald, Worker health and safety training: Assessing impact among responders. *American Journal of Industrial Medicine*, *33*, 1998, 241-246.
22. A. Tulka, F. Suderman, and L. Hamidah, Kajian kesedaran staf politeknik melaka terhadap keselamatan dan kesihatan di tempat kerja, *Artikel Jurnal Politeknik*, 2012.
23. M. Mustazar, and H. S. Peng, Effectiveness of occupational safety and health training in reducing accidents at workplace, *Prosiding PERKEM IV, 2*, 2009, 293-342.
24. A. H. Zolkufli, and A. Faiz, Tahap kesedaran staf UTM terhadap keselamatan pekerjaan di makmal dan bengkel kejuruteraan, *Journal of Educational Management, 6*, 2012, 36-51.
25. M. Saidin, and M. Hakim, Pembangunan budaya keselamatan dalam industri pembinaan, *The Professional Journal of the Institution of Surveyor, 42(2)*, 2007, 20-33.

26. S. C. Hu, C. C. Lee, J. S. C. Shiao, and Y. L. Guo, Employers' awareness and compliance with occupational health and safety regulations in Taiwan, *Occupational Medicine, 48(1),* 1998, 17-22.
27. A. B. Faizal, M. H. Jamaayah, and W. S. Wan Mohd Noor Shahril, Kajian tahap kesedaran pelajar jabatan kejuruteraan awam politeknik sultan haji ahmad shah (POLISAS) terhadap keselamatan dan kesihatan pekerjaan di tempat kerja, *Conference Proceedings 141,* Politeknik Seberang Perai, Penang, 2014.
28. R. Mazliah, *Tahap kesedaran guru-guru tadika terhadap keselamatan dan kesihatan pekerjaan di tempat kerja: Kajian kes di negeri Melaka,* master diss., Universiti Utara Malaysia, Kedah, Malaysia, 2012.
29. H. Wan Rosmini, *Tahap kesedaran pekerjaan berhubung dengan keselamatan dan kesihatan di tempat kerja: Suatu kajian kes di Hume Cemboard Berhad. Primaboard Division*, diss., Universiti Utara Malaysia, Kedah, Malaysia, 2000.
30. Y. P. Chua, *Kaedah dan statistik penyelidikan: Kaedah penyelidikan* (Kuala Lumpur, McGraw Hill Education, 2006).
31. S. B. Green, How many subjects does it take to do a regression analysis? *Multivariate Behavioural Research, 26(3),* 1991, 499-510.
32. J. Hair, R. P. Bush, and D. J. Ortinau, *Marketing research: Within a changing information environment* (New York, McGraw-Hill/Irwin, 2003).
33. M. S. MacNealy, *Strategies for empirical research in writing* (New York, Longman, 1999).
34. M. H. Alvi, *A manual for selecting sampling techniques in research*, diss., University of Karachi, Iqra University, Pakistan, 2016.
35. F. Hair, W. C. Black, B. J. Babin, and R. E. Anderson, *Multivariate data analysis* (Englewood Cliffs, Prentice Hall, 2010).
36. J. Pallant, *SPSS Survival manual* (Australia, Everbest Printing Co, 2011).
37. R. Kline, *Principles and practice of structural equation modelling* (New York, The Guilford Press, 2011).
38. W. M. Trochim, and J. P. Donelly, *The research methods knowledge base* (Cincinnati, OH: Atomic Dog, 2006).
39. A. Field, *Discovering statistics using SPSS* (London, SAGE, 2009).
40. F. Gravetter, and L. Wallnau, *Essential of statistics for the behavioural sciences* (Belmont, CA: Wadsworth, 2014).
41. J. F. Hair, G. T. M. Hult, C. M. Ringle, and M. Sarstedt, *A primer on partial least squares structural equation modelling* (Thousands Oak: Sage, 2017).
42. D. Mundfrom, D. Shaw, and T. Ke, Minimum sample size recommendations for conducting factor analyses, *International Journal of Testing, 5(2*), 2005, 159-168.
43. W. G. Zikmund, B. J. Babin, J. C. Carr, and M. Griffin, *Business research methods* (Mason, HO: Cengage Learning, 2010).
44. J. A. Davis, *Elementary survey analysis* (Englewood Cliffs, NY: Prentice Hall, 1971).
45. F. N. Kerlinger, and E. J. Pedhazur, *Multiple regression in behavioral research* (New York: Holt, Rinehart & Winston, 1973).
46. U. Sekaran, and R. Bougie, *Research methods for business: A skill-building approach* (Haddington: John Wiley & Sons, 2016).
47. R. Bougie, and U. Sekaran, *Research methods for business: A skill building approach* (New York: John Wiley & Sons, Inc, 2016).
48. S. Hwang, M. I. Gomez, A. D. Stark, T. L. St. John, C. I. Pantea, E. M. Hallman, J. J. May, and S. M. Scofield, Safety awareness among New York farmers. *American Journal of Industrial Medicine, 38,* 2000, 71-81.
49. A L. Abd. Hamid, *Amalan keselamatan bengkel dalam kalangan pelajar kolej kemahiran tinggi MARA,* diss., Fakulti Pendidikan Teknikal dan Vokasional Universiti Tun Hussein Onn Malaysia, Johor, Malaysia, 2012.
50. O. Rosliza, A. Noorhashimah, S. H. Syed Abdul Hamid, and M. Y. Norsyahidah, Level of awareness on behaviour-based safety (BBS) in manufacturing industry towards reducing workplace incidents, *International Journal of Education and Research, 3(1),* 2015, 77-88.
51. S. Arora, N. Sevdalis, M. Ahmed, H. Wong, and M. Krishna, Safety skills training for surgeons: A half-day intervention improves knowledge, attitudes and awareness of patient safety, *Surgery, 152(1),* 2012, 26-31.
52. A. H. Hommadi, *Environmental and industrial safety* (South Asia Book, 1990).
53. R. Mohd Fadlie, *Tahap kesedaran pekerja binaan terhadap keselamatan dan kesihatan pekerjaan: Kajian tapak pembinaan SA2 logistic hub,* master diss., Universiti Utara Malaysia, Kedah, Malaysia, 2016.