Examining the Influence of Lecturer's Safety Leadership Towards Student's Lab Safety Behaviour in Polytechnic Port Dickson

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Abstract

The need to take safety as the underlying core aspects of all business operations and services which includes educational institutions becoming a concern especially when few catastrophic fire tragedies occurred lately took lives of young children mercilessly. This study mainly examines the influence of lecturer's safety leadership towards safety behavior among engineering students of Polytechnic Port Dickson. The aspects of safety rely not only on installing expensive equipment and alarms but also in prevention method through awareness and attitude of building occupants. Educational institutions such as polytechnics have many engineering laboratories that need to be operated by inexperienced students with lecturer's guidance. Therefore they are exposed to various hazards both inside and outside of laboratory. Just as the saying goes "prevention is better than cure" this study helps to determine what other methods that lecturers can use to create safety behavior among students so that they can well manage the existing hazard in lab. This instilled safety behavior can then be brought into their far more hazardous environment during their working life in future. Safety leadership of lecturer is looked into three attributes which are safety concern, safety motivation and safety policy. These three attributes contributes as independent variables. Students' safety behavior consists of two dependent variables which are safety compliance and safety participation. The influence of each of these two attributes (safety compliance and safety participations) towards safety leadership attributes is studied using a total of 345 questionnaires which were distributed to mechanical, electrical and civil department of Polytechnic Port Dickson. Correlation and Multiple Regression analysis were used to in Statistical Package for Social Sciences, (SPSS) to analyze the outcome of raw data. Safety compliance shows significant relationship with all three safety leadership attributes (safety concern, safety motivation, and safety policy).The highest influence towards safety compliance of students goes to safety policy, followed by safety concern and the least is safety motivation. As with safety participation, the highest influence goes to safety concern, safety motivation and the least is safety policy. Safety component is the most essential in determining safety behavior as it has been consistently explaining the variance in both dimensions of safety behavior.

Keywords: safety leadership, safety motivation, safety concern

1.0 Introduction

From the beginning, government has been giving dire attention on Technical Vocational Education and Training (TVET) as the target source in providing high-skilled human resources and also as key players in driving Malaysia's economy into a high-income nation. There are a total of 36 polytechnics in various states of in Malaysia including Sabah and Sarawak. Majority of these polytechnics offer diploma mainly in Electrical, Civil and Mechanical Engineering where else some polytechnics are known for its own niche area or specialized field. Being offered programs as such, the laboratories of polytechnics are equipped with heavy machineries, chemicals, and sophisticated hands-on practical equipment that expose students to various kinds of hazards (Che Juhan Negara, 2012). Polytechnic Port Dickson alone has more than 38 laboratories and workshops comprising electric and electronic trainers, mechanical machineries,

robotics as well as civil labs ranging from architecture designing to cement workshops. Laboratories are considered highly hazardous places in polytechnic and safety practices adopted by teachers are important in realizing technical laboratory safety (A.Saful, Hassan, Mazlan, Patakor, & Salleh, 2011).

Majority of polytechnic graduates get themselves employed in manufacturing companies, oil and gas industry, food industries, M&E sectors and also IT sectors which they encounter various challenges, hazards and issues pertaining to safety concerns. These graduates are employed as technicians and assistant engineers who mostly indulge in hands-on and technical issues at their workplace. Statistic data on TVET institution at the regional level shows 85% of employability rate within 6 months after graduation (Dr Azman, Mohamed Ashari, Satter Rasul, & Rauf Abdul, 2015) Within this short gap upon graduation and employability, expectations to face ad manage hazardous environment is high.

Based on OSHA Act 514, section 15, the statement on general duties of employers towards their employees, when relate to polytechnic environment, corresponds to the general duties of management of polytechnic towards lecturers and workers (Occupational Safety and Health Act, 1994). On the other hand, section 17, states general duties of employees to person other than their employees, and this is where the students' scope is touched under the law of OSHA. Therefore students of polytechnic are included in part of the obligations that the management must take account for. Safety and health committee in Polytechnic Port Dickson was recently established in 2014 and had conducted its first meeting on 31 Mac 2014. As the committee is still new, many underlying safety issues including safety behaviour need to be closely looked upon as a prevention method.

Accidents at workplace trigger many safety issues and concerns. The reason behind fatal accidents are unsafe act such as dangerous working method that involves conscious risk taking (Lind,2008; Brown et al.,2000; Abdullah et al.,2012).

Another study states that both unsafe act and unsafe condition become the underlying factor of accident occurrence (Abdul Hamid, 2008) Failure to obey the established rules, unethical behaviour at workplace, and not wearing PPE like safety gloves, safety helmet and safety boots are among the unsafe act committed by workers (Abdullah, Mansor, & Zakaria, 2012). Instilling safety behaviour provides awareness and knowledge on these unsafe act and unsafe condition that leads to workplace accidents.

1.2 Problem Statement

Polytechnics consisting of laboratories and workshops ranging from electrical, mechanical and civil that uses hazardous heavy equipment as well as machineries and is operated by inexperienced students. This exposes them to danger. Incidents and accidents do occur in educational institutions and therefore precautions need to be taken before any serious life threatening damages occurs. Although alarms, sensors, machines standard operating procedure (SOP) and warning signs are installed, it takes right

attitude of students to look at rules seriously and to always follow safety regulations unconditionally (Abdullah, Mansor, & Zakaria, 2012).

Workplace accidents that occur worldwide mostly involve fresh young workers instead of seniors (Koo, Nurulazam, Rohaida, Teo & Salleh, 2014; Schulte, Stephenson, Okun, Palassis, & Biddle, 2005). It is recommended that safety be exposed at education level as compared to beginning of working environment in order to move towards better safety practices among young workers (Biddle, Okun, Palassis, Schulte, & Stephenson, 2005). The current method of teaching towards instilling safety behaviour is diluted and still mild in polytechnics environment.

A cost saving way of prevention method is needed especially when faced with limited budget allocation in educational institutions. Apart from installing basic features in buildings and classrooms, instilling safety behaviour through lecturer's safety leadership shows how both parties can come up with costless method in preventing accidents and instilling safety act at all times. Costly sophisticated equipment and many awareness programs consumes budget that can't change students attitude overnight and instantly.

1.3 Objectives

The study mainly done to investigate whether students' perception towards their lecturers' safety leadership (from the aspect of safety motivation, safety policy and safety concern) has significant influence on their safety behaviour (from the aspect of safety participation and safety compliance). The breakdowns of the objectives are as follows:-

i. To investigate whether student's perception towards their lecturer's safety leadership from the aspect of safety motivation has significant influence on their safety compliance.
ii. To investigate whether student's perception towards their lecturer's safety leadership from the aspect of safety motivation has significant influence on their safety participation.
iii. To investigate whether student's perception towards their lecturer's safety leadership from the aspect of safety policy has significant influence on their safety compliance.
iv. To investigate whether student's perception towards their lecturer's safety leadership from the aspect of safety policy has significant influence on their safety participation.
v. To investigate whether student's perception towards their lecturer's safety leadership from the aspect of safety concern has significant influence on their safety compliance.
vi. To investigate whether student's perception towards their lecturer's safety leadership from the aspect of safety concern has significant influence on their safety participation.

1.4 Research Framework

This study is very much based on Lu and Yang (2010) who conducted a similar study on safety leadership and safety behavior in container terminal operations. The independent variables are from safety leadership aspects which are safety concern, safety motivation and

safety policy where else dependent variables are safety behavior that is further divided into safety compliance and safety behavior. This study adapted safety leadership model from Lu & Yang (2010) who used "safety motivation", "safety concern" and "safety policy" as independent variables reflecting the employer's safety leadership attributes.

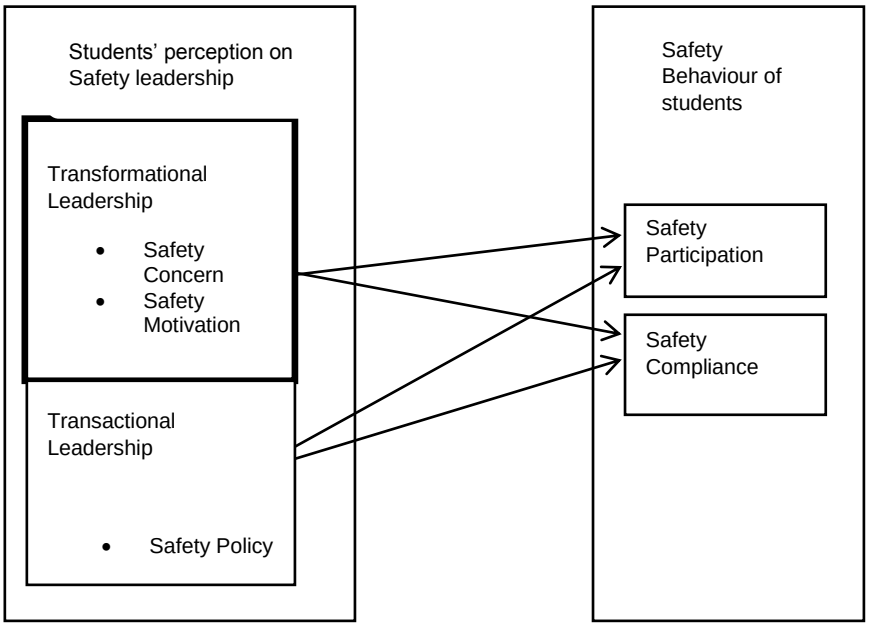

Figure 1: Research Framework

Safety leadership in the form of transformational and active transactional of lecturer can affect student behavior when the subjective norm on the way lecturer appreciate and praise when student portrays good safety behavior. (Students observes and beliefs on how lecturers perceive their behavior). Leadership can also affect the attitude of student toward the behavior when the good lab safety behavior is praised, encouraged, and given priority by lecturers. Lecturer when emphasizing on good safety behavior, the perceived degree of control over the behavior is affected as well. These altogether can create positive behavioral intention which can directly affect student's lab safety behavior. When they perform good safety behavior, unsafe acts can be reduced and this in turn will reduce accidents in labs of educational institutions.

2.0 Literature review

2.1 Relationship between Safety Leadership and Safety Behaviour

A study to find the common causes of workplace accidents and further investigates relationship between individual factors and job factors that causes workplace accidents was done (Abdullah, Mansor, & Zakaria, 2012). Besides reliability analysis, chi-Square test and correlation coefficient was used in the study. The result of the study states that unsafe acts are one of the elements that influence workplace accidents. Researcher deepens the theory of unsafe acts by explaining Heinrich findings and also highlights examples of unsafe acts like workers not following company rules and not wearing PPE is the reasoning behind workplace accidents. Researcher also

emphasizes the fact that controlling unsafe behaviour is proven to be the most difficult as it correlates with worker's behaviour and attitudes and this directly supports the fact that safety behaviour need to in still during study life itself. Yang, Wang, Chang, Guo, & Huang (2009) conducted study on healthcare industry. The objective of this study is to investigate the relationship between leadership behaviour, safety culture, and safety performance. Out of 350 questionnaires, 195 valid ones are used to obtain results via confirmatory factor analysis, one-way ANOVA. The questionnaires were based on Leadership Behaviour Description Questionnaire. The results concluded that leadership behaviour shows impact on safety culture and safety performance in the context of health care industry. Research recommends that safety performance can be improved via leadership behaviour that focuses on welfare of workers and builds positive relationship with workers. This type of leadership is known as inconsistent style and is more like transformational or people oriented way.

Mullen, Kelloway, & Teed (2011) conducted study was on investigating the impact of inconsistent leadership safety-specific leadership style on safety behaviour. Here safety behaviour is analyzed using safety participation and safety compliance. Safety participations said on how worker contributes to safe working environment by voluntarily participating in safety activities and programs. Safety compliance is how worker perform required behaviour like wearing PPE, attending safety meetings, promoting safety and etc. the findings of this study indicates that transformational safety-specific leadership is strongly associated in safety compliance and safety participation.

Skeepers & Mbohwa (2015) investigates relationship between leadership behaviour, safety communication and safety performance in construction industry of a small district in South Africa. The findings reveal that leadership behaviour affects safety culture and safety performance in the construction industry at South Africa. This research focuses on transformational leadership. However, researcher uses a more detailed method to test the variables. Structural Equation Modeling techniques was used to test relationship among latent variables. Descriptive analysis exploratory factor analysis and total correlation analysis is used by the researcher to break the safety leadership constructs into smaller number of manageable factors. Confirmatory analysis are then used to examine the contracts of safety vision, commitment, culture, communication and other construct in that study.

D.Cooper (2010) proves that there is a correlation between safety behaviour and safety leadership and the study took place in the scope of construction industry. A quasi-experimental design was implemented. Measurement was done on safety leadership, employee safety behaviours as well as corrective actions.

Wahab, Mad Shah, & Idrus (2012) conducted a study in context of automobile industry in Malaysia to investigate the role of transformational leadership on safety performance. The questionnaire was based on Multifactor Leadership Questionnaire and safety performance scale which was distributed to 696 employees from various automotive manufacturing

and assembly plants. Canonical correlation analysis was used by the researcher and the findings prove that transformational leadership has significant influence on safety performance in automotive industry.

Xuesheng DU & SUN Wenbio (2012) studies regarding coalmines in China that also investigates relationship between safety leadership and safety climate in the context of coal mine in China. The findings indicate safety leadership positively correlates with safety commitment and safety involvement attributes that comes under safety climate. The relationship was found using structural equation model (SEM) analysis. Researcher mentioned that safety climate is similar to "snapshot" of workplace perception about safety.

Jamaludin, Naim, Khamis, & Zakaria (2015) investigate leadership style among head of department (H.O.D) and the effects on work culture in a Polytechnic located at Kedah. Researcher used Leader Behaviour Description Questionnaire as measurement tool to see the relationship between both attributes. Data was analyzed using Pearson correlation co-efficient, ANOVA and T-test. The study investigates of both task-oriented leadership or transactional leadership and also relations oriented leadership or transformation leadership. Findings revealed head of department practices both type of leadership styles but transformational leadership shows more dominance.

Pongpearchan (2016) investigates the effect of transformational leadership and high performance work system on job motivation and task performance at business schools of Thai universities. The results reveal that transformational leadership and high performance work system has a positive effect on job motivation which will then positively affect task performance.

Clarke (2013) used meta-analytic path analysis to test a theoretical model of safety leadership that integrates both transformational and active transactional leadership styles. The findings indicate that both type of transformational and transactional leadership leaves positive impact on safety. Researcher mentioned that in order to ensure compliance to rules and regulation, active transactional is essential. On the other hand, transformational leadership encourages worker's participation in safety.

Mullen & Kelloway (2009) contributes to first known assessment of transformational leadership based intervention on safety outcomes. Two types of training were assigned; one is general transformational leadership training and other safety-specific transformational leadership training. Researcher mentioned that safety-specific transformational leadership training is a form of low cost intervention and at the same time have positive impacts on safety outcomes although the impacts is small. The researcher convinces that small impact can able to reduce accident rates which further lessen financial burden of an organization.

2.2 Theory of Planned Behaviour

Theory of Planned Behaviour predicts an individual behaviour by catering the person's attitude, beliefs, and intentions. The TPB model that incorporated of safety example shows that a behaviour can be predicted by the individual's attitude to the particular behaviour, his intensions to

perform the behaviour, what he believes are the consequences of performing that behaviour and also social norms that controls the behaviour (Glendon & Clarke, 2015). The diagram bellows shows Theory of planned behaviour incorporating safety example adopted from Glendon & Clarke (2015).

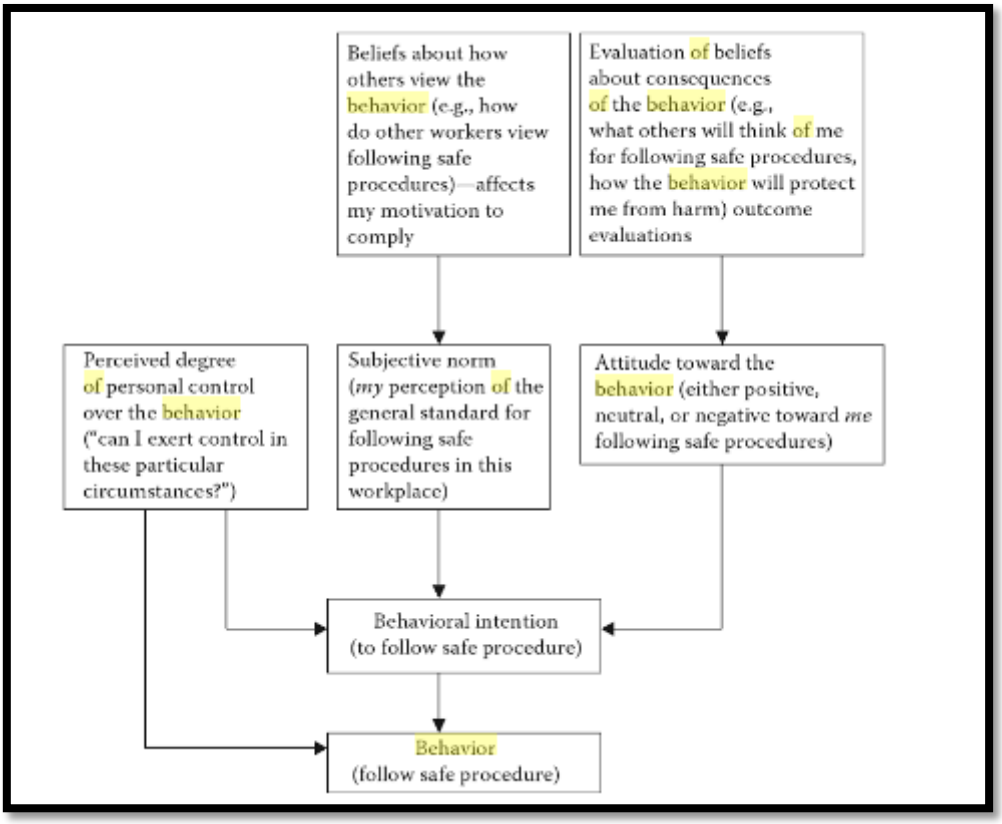

Figure 2: Theory of planned behaviour incorporating safety example

2.2 Behaviour Based Safety

Safety engineers have concluded most workplace injuries resulting from unsafe act as compared to unsafe conditions (Asfahl & Rieske, 2010). The origin of this taught is referred back from old days itself by Heinrich. According to the author of a book, Heinrich studies revealed in the ratio of 88:10:2 which comprise of:-

- Unsafe acts – 88%
- Unsafe conditions – 10%
- Unsafe causes – 2%
- Total causes of workplace accidents – 100%

These unsafe acts can be related to risk based behaviours. Therefore the objective of Behaviour Based Safety is to minimize these unsafe acts. This is in fact using psychology or to achieve safety goals which is in line with current study.

The author also mentioned that these findings have been questioned recently and the current trend goes towards improving the conditions of the workplace instead such as machinery, environment, guards, and protective systems (Asfahl & Rieske, 2010). Analysis is still been conducted and investigated whether human carelessness can be prevented through process

redesign (Asfahl & Rieske, 2010). However, increase attention is given on employees recognize the gravity of hazard themselves. The author shows concern on employee's action when the top management is not looking and whether or not they take seriously the hazards of unsafe operations. If they do, the workers themselves can drive safety programs from ground up.

According to Charles D. Reece (2016), unsafe acts such as standing under a suspended load, starting machinery without warning, horseplay, and safeguard removal are among the common ones that result in accidents. Reece (2016), highlights an important aspect of behaviour based safety. According to him, BBS alone cannot become the ultimate solutions but instead all items such as training, safety and health program, accident/incident analysis, safety engineering, controls and other interventions must be in place and only then BBS can become prominent in implementing. Behaviour approach is seen as the second step towards safety performance once other components mentioned before are already in place. Therefore, Reece (2016) highlighted the best time to implement BBS. There is no point when other engineering controls and safeguards are in place but unsafe behaviour of workers such as removing safeguards could result in adverse effect of safety interventions. On the other hand, Reece (2016) says that it is not an easy task to alter or change behaviour as behaviour is manifestation of attitudes and values deeply dwelled within employee. As such, it is important to instill the early stage especially in young adults during their study life itself.

Hughes and Ferret (2016) mentioned on the method to improve safety behaviour at work. According to him, it can be strengthen through positive reinforcement by setting a good example, encourage workers to set their own safety targets, and provide positive feedback on behaviour (Hughes & Ferrett, 2016). The disadvantage is that it requires significant amount of time and resources to instill this safety behaviour among workers, which further establish the fact that it should be started during the polytechnic days itself before they step into industries. The author mentioned that, in order to improve safety behaviour , factors such as commitment by the management, promotion of safety and health standards, effective communication within organization and effective training program is essential. Commitment by management here includes activities that correlate with safety leadership.

Many researchers have been conducted in behaviour based safety in different field of industry. One of the researches was conducted in construction industry in Hong Kong (Lingard & Rowlinson, 1997). The objective of this study is to implement behaviour based safety in that industry. The techniques used are performance measurement, participative goal setting, and provision of performance feedback in seven housing construction for public in Hong Kong. The findings show improved performance in terms of housekeeping at sites (Lingard & Rowlinson, 1997). However, the findings indicated no improvement on the usage of bamboo scaffoldings. The results show that, implementing behaviour base safety cause positive effect in safety performance.

Quantitative study was conducted to assess the effectiveness behaviour based safety intervention in reducing accident rates (Tuncel,

Lotlikar, Salem, & Daraiseh, 2006). Meta-analysis was performed to determine the direction and size of the effect and critical appraisal was also performed to assess methodological quality of the said study. The findings revealed that eight studies shows reduced rate of accident after conducting BBS intervention.

Another research was established that studies on long term evaluation of BBS method for improving safety performance that involves a meta-analysis of 73 interrupted time-series replications (Krause, Seymour, & Sloat, 1999). According to the author, data of 73 companies within 5 years taken from population of 229 companies which implement BBS methods were examined. The test findings indicate a reduction in incidents after implementing BBS safety implementation. The validity of the findings was thoroughly examined as well.

3.0 Methodology

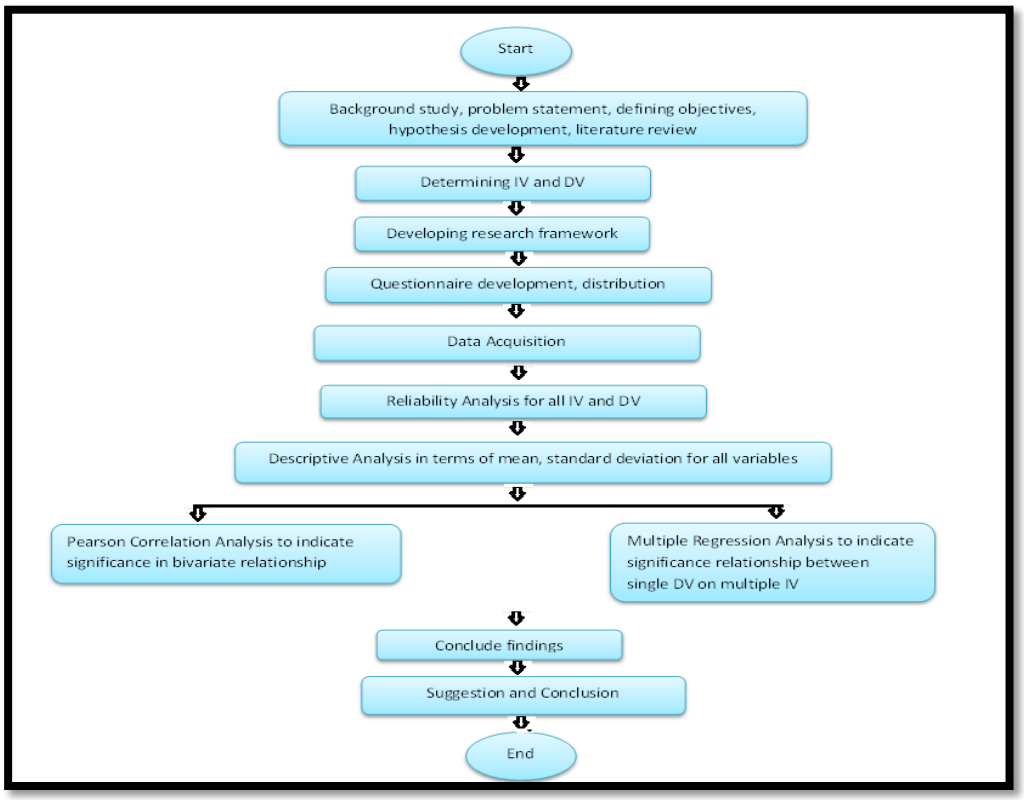

Figure 4: Flow chart of methodology

As this study focuses on examining the influence of lecturer's safety leadership towards student safety behavior in all engineering department, the focus is on the receiving end whom is the students. Final semester student expose to higher degree of laboratory usage as compared to their juniors. The flowchart below shows the chronology of process that need to be done until completion of this study.

4.0 Data collection techniques

Questionnaire used for this study is self-administrated questionnaire that is prepared with minor modification which was adopted from Lu and

Yang (2010) who then adopted from previous research. The instrument has three parts, Part A comprises of demographic information, Part B is Employer safety leadership attributes and Part C is Employee Self-Reported Safety Behaviour Attributes. Part B measures the safety leadership that has three attributes: Safety motivation, Safety Concern and Safety Policy. Part C is used to measure safety behaviour with aspects of Safety Compliance and Safety Participation. All the questions are designed based on Likert scale. The questionnaire was translated by an author certified under Institute of Translation Malaysia and was back translated in English which was then compared to the original questionnaire. Sample represents a population and can be calculated using a formula by Krejcie and Morgan (1970). Alternatively, these formulas are used and can be found in a table that contains population versus respective sample size. 5 % of margin error and 95% confidence level can be used in the formula and is mostly used in all research of social sciences (Royse,, A. Thyer, & Padgett, 12 Mar 2009).

4.1 Pilot Study

Pilot study has been conducted on 12th of July 2017 whereby a number of 55 students were involved. Table 1 shows the result of the pilot study indicates that the value of Cronbach's alpha is exceed that 0.7. According to Nunnally (1998), if the value of Cronbach alpha is 0.7 and above, it indicates the items used to measure the variable are good.

Table 1: Reliability of Cronbach's alpha in pilot study

Variables	Number of items	Cronbach's alpha
Safety Concern	5	0.773
Safety Motivation	7	0.795
Safety Policy	4	0.714
Safety Compliance	4	0.761
Safety Participation	2	0.703

4.2 Correlation Analysis

The main purpose of correlation analysis is to determine the strength and direction of linear relationship between two variables (Pallant, 2011). For this purpose of study, Pearson correlation co-efficient is used. Here, a simple bivariate correlation is obtained using SPSS. Below here shows the value that corresponds to the strength of relationship between two variables

Table 2: Measure for Pearson correlation coefficient

r value	Relationship
0.7 and above	Strong
0.4 to 0.69	Moderate
0.39 and below	Weak

4.3 Multiple Regression Analysis

Multiple regression analysis is used here to test the significance relationship between a single dependent variable and more than one independent variable. In this study, each variable, safety concern, safety

motivation, safety policy is simultaneously tested upon safety compliance and also safety participation.

5.0 Results

The data are collected through distribution of questionnaires and are analyzed using SPSS version 22. Frequency analysis is done for demographic information such as age, gender, marital status, race, length of service and education level. Other analyses such as descriptive analysis, Pearson Correlation coefficient, as well as multiple regression analysis are also done and test results are revealed and discussed.

5.1 Respondents Demographic Background

A number of variables were used to describe the sample characteristics namely gender, marital status, race, education level and study duration. Table 3 exhibits the differences in the demographic profile of respondents based on the variables mentioned earlier.

Table 3: Demographics background of respondents

Variables		Frequency	Percentage
Gender	Male	251	72.8
	Female	94	27.2
Age	18	14	4.1
	19	128	37.1
	20	164	47.5
	21	24	7.0
	22	0	0
	23	15	4.3
Marital Status	Single	345	100
	Married	0	0
	Divorce/Widow	0	0
Race	Malay	299	86.7
	Chinese	2	0.6
	Indian	44	12.8
Education Level	Primary	0	0
	Education	0	0
	LCE/SRP/PMR	345	100
	MCE/SPM/SPMV	0	0
	HSC/STPM	0	0
	Diploma		
Study duration	1 year	42	12.2
	2 years	162	47
	2.5 years	141	40.9

5.2 Reliability Analysis

Table below shows the result for reliability analysis conducted for each variable. The purpose of conducting reliability analysis is to determine the internal consistency for each item that measures a certain scale. It is a psychometric measure in assessing survey and questionnaires and is not applied for single items but a group of items (Litwin & Fink, 1995). For the

item to be reliable, the scale has to be more than 0.6. Reliability that has below 0.6 is said to be unacceptable. As can be seen from the analysis below, safety policy has 0.847, safety motivation has 0.813 and safety participation has 0.876. Safety concern and safety compliance achieved reliability more than 0.9 and it is said to have a very good reliability.

Table 4: Reliability test result

Variable	Number of items	Cronbach's alpha
Safety Policy	4	0.847
Safety Concern	5	0.920
Safety Motivation	7	0.813
Safety Compliance	4	0.929
Safety Participation	2	0.876

5.3 Descriptive Analysis

The survey tools used Likert scale ranging from 1 to 5 (1: strongly disagree, 2: disagree, 3: neither disagree nor agree, 4: agree, 5: strongly agree). Table 5 describes on the mean, standard deviation, minimum value, maximum value for each score. The survey tools used Likert scale ranging from 1 to 5 (1: strongly disagree, 2: disagree, 3: neither disagree nor agree, 4: agree, 5: strongly agree). Table below describes on the mean, standard deviation, minimum value, maximum value for each scare. When the mean score approaches within the range of 3.68-5.00, the variable is considered high, 2.34-3.67 is at moderate level, and from 1.00 - 2.33 is at low level. (Davis J.A, 1971). As a whole, the mean score obtained for all variables are more than 3.6. The analysis also reveals data on standard deviation whereby the highest value goes for safety compliance, followed by safety participation, safety concern, safety policy and then finally to safety policy.

Table 5: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
POLICY	345	1.00	5.00	3.7435	.76804
CONCERN	345	1.00	5.00	3.7380	.84920
MOTIVATION	345	1.00	4.86	3.5155	.59543
COMPLIANCE	345	1.00	5.00	3.7255	.97948
PARTICIPATION	345	1.00	5.00	3.8899	.96571
Valid N (listwise)	345				

5.4 Correlative Analysis

The analysis results reveal that all independent variables (safety concern, safety motivation, and safety policy) are positively correlated at 0.01 with dependent variable (safety compliance, safety participation). The highest Pearson Correlation coefficient value, r, is 0.718 which describes a strong correlation between safety participation and safety concern and the

lowest correlation is described with r of 0.572 which is between safety motivation and safety compliance. As with respect to all independent variables and safety compliance, the highest correlation goes to safety policy (r=0.678) followed by safety concern (r=0.641) and finally safety motivation (r=0.572). Where else the correlation between all independent variables with respect to safety participation would be strongest for safety concern (r=0.718), followed by safety motivation (r=0.613) and finally safety policy (r=0.603). Based upon correlation analysis, the value of correlation above 0.6 shows a moderate correlation and those 0.7 and above shows strong correlation.

Table 6: Correlation analysis

	Policy	Concern	Motivation	Compliance	Participation
Policy	1	.704	.598	.678	.603
Concern		1	.634	.641	.718
Motivation			1	.572	.613

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

5.5 Multiple Regression Analysis

Table 7 shows the analysis of independent data (safety policy, safety concern and safety motivation) against safety compliance.

Table 7: Beta Coefficient A

variable	Unstandardized coefficients		Standardized coefficients	t	Sig
	Beta	Std. Error	Beta		
Policy	0.506	0.069	0.397	7.298	0.000
Concern	0.289	0.065	0.250	4.442	0.000
Motivation	0.289	0.082	0.176	3.519	0.000

Dependent variable: Safety Compliance

Referring to table 7, all the beta value for the standardized coefficient shows a positive value which means all of them are positively related to safety compliance. Beta value for Policy shows the highest value of 0.397 followed by concern, 0.250 and finally is motivation with very least value of 0.176. This reveals that safety policy makes the strongest unique contribution to explain safety compliance.

Based upon the result from the table 8 below, the highest Beta value of standardized coefficient falls on safety concern which is 0.483, followed by safety motivation, 0.232 and the least would be safety policy of 0.125. The results indicate that safety concern is having greatest influence on safety participation. Thus, in sum the findings shows that all independent values are positively correlated to safety participation.

Table 8: Beta coefficient B

variable	Unstandardized coefficients		Standardized coefficients	t	Sig
	Beta	Std. Error	Beta		
Policy	0.157	0.066	0.125	2.382	0.018
Concern	0.549	0.062	0.483	8.888	0.000
Motivation	0.377	0.078	0.232	4.827	0.000

Dependent variable: Safety participation

6.0 Discussion

Safety policy is a type of leadership aspect that states the vision, mission and workplace rules clearly. When put into writing, it shows the seriousness management has when it comes to incorporating safety into his daily business. Under safety policy, the management which is in this case the lecturers', are entirely job focused and applying a transactional leadership style as opposed to transformational leadership (people focused). This type of leadership style reveals a more aim focused lecturers and thus urges students to comply on the safety rules and regulations in laboratories because they realize the seriousness that lies behind safety goals. Therefore safety policy has the most influence on compliance aspect of students' safety behavior. Safety concern is the second most influence towards safety compliance of student. Safety concern is a leadership style where the leaders themselves become an example on how they want others to be. Students learn many attributes and attitudes through their lecturer with whom they spend most of their time with. As the lecturer complies to the safety rules in laboratories, the student tend to follow this positive attitude and began to instill safety behavior in them. However, this type of leadership has only second most influence as compared to safety policy which has the most influence to safety compliance.

The least influence on safety compliance is the safety motivation. As safety motivation implements a reward for each good behavior, student doesn't show any urge in complying the rules especially whenever such act not performed in front of lecturer. The expectation on merely reward doesn't show them the real benefit of complying with safety rules.

Safety participation among students focuses on voluntarily act in participating in safety activities such as safety meetings, reporting unsafe acts and much more. To instill this behavior, safety concern has the most influence, followed by safety motivation and the least influence is the safety policy. As lecturer set an example to students by actively organizing safety programs, meeting, performing safety activities, students become thrilled and motivated and eventually encouraged to join in. As this comes without any force on them, influencing by setting an example is a method to cultivate safety participation. Having a reward system for every good behavior also could influence student on safety participation. For example, the institution can set up a merit marks for those students who voluntarily indulge in safety program. Having more merit marks which can have an added value in their resumes later, can further increase their desire in safety activities which can have chance to increase the awareness of safety among students. Both safety concern and safety motivation is a

transformational leadership, or people focused leadership style as these two gives important to establishing relationship among lecturer and students. Safety policy has the least influence when it comes to safety participation. Safety policy is a job focused and aim achieving type of approach which does have least impact in voluntary actions among students. Students' safety behavior is investigated in terms of safety compliance and safety participation. Based on this conclusion, this cost beneficial approach of cultivating safety behavior through safety leadership should easily be implemented in all other polytechnics and educational institutions in Malaysia. Cultivating safety behavior the right way helps to raise the image of polytechnic in grooming students to and meet industrial demand.

7.0 Conclusion

Based on results, it can be concluded that all independent variables which are safety motivation, safety concern and safety policy are positively related to safety participation and safety compliance. The result of the correlation analysis reveals that, the highest correlation among the independent variables with respect to safety compliance is safety policy followed by safety concern and finally safety motivation. On the other hand, the highest correlation among independent variables with respect to safety participation is safety concern, followed by safety motivation and finally to safety policy.

Similarly for multiple regression analysis, the results reveals that safety compliance is positively influenced by all three independent variables with safety policy having the greatest influence on safety compliance followed by safety concern and finally a least correlation of safety motivation.

As with safety participation, safety concern having the greatest influence, followed by safety motivation and finally is safety policy. Based on the results as a whole, safety concern can be considered as an important variable as it gives influence in both dimensions of safety behavior. The results obtained are further discussed in the following section.

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