

## **Observations Results on the Burmese Construction Workers after Using the IM-Smart Safety Software**

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### **Abstract**

*The results of the observation conducted found that a majority of the Burmese construction workers are using the self protective gears; that is the protective helmet, protective shoes and protective gloves according to the requirement of the type of work they do (brick works and cement mixing) as well as complying with the safety warning signs at the construction site after using or receiving informations from the IM-SmartSAFETY software. Nevertheless, only a small number of the workers are found not using the self protective gears, and not complying with the safety warning signs. Among the factors that caused this situation is the fact that the sub-contractors are less concerned at replacing the damaged gloves for the workers. Apart from that, the attitude of the Burmese construction workers themselves who are not concerned with the aspects of using the self protective gears and the compliance of the safety warning signs; such as, not being aware of the safety warning signs placed at the construction site, confident that accidents will not happen as they are already familiar with the situations in the work place and are skilled at the tasks performed even if they do not use the self protective gears; could not use the self protective helmet because of the hot weather and the physical feature of the helmet which does not fit the head as well as not being able to use the protective shoes as the shoes are wet.*

**Key words:** observation, foreign worker, construction industry, Malaysia

### **1. Introduction**

The language problem issue in the construction industry has happened to countries that recruit foreign workers as the workforce to carry out construction works. Generally, the discussions are more focused on language problems in the construction industry. Therefore, in this paper, the researcher is focussing more on the study towards language problem amongst foreign workers that happen during the Safety and Health Induction Course that is compulsory to be attended by the workers before entering or starting work at the construction site to enable them to obtain the green card.

## 2. Study Background

As the research conducted by Trajkovski and Loosemore (2006) on the construction industry in Australia, shows that 77.5% of the foreign workers try to avoid attending the safety course even though it is compulsory because the course is conducted entirely in English, 89.9% of the foreign workers state that it is more effective if the safety courses are conducted in their native language, 68.4% of the foreign workers state difficulty in understanding the written materials given, 67.1% of them did not understand the information presented verbally and 72.2% of the foreign workers state that there were no assistance offered by the course instructors to help them understand the material given.

Whereas, in Malaysia, initial study conducted by Nurul Azita et al. (2012) found that 43.75% (42) of the 96 course instructors who responded state that verbal language problems does occur and 77.1% (74) state that written language problem occurs entirely amongst the foreign workers during the Safety and Health Induction Course. Initial study conducted on the Burmese foreign workers; the second largest foreign workers after the Indonesian foreign workers, during the Safety and Health Induction Course also found that only 13.7% (14) of the 102 Burmese foreign workers responded positively and 43.1% (44) of them did not understand the information presented verbally in Malay. Apart from that, the researcher also found that only 6.9% (7) of the Burmese foreign workers could understand and 55.88% (57) of them did not understand the information presented in the written form of the Malay Language. This issue occurs in the initial study conducted by the researcher where it was found that 85.4% (82) of the course instructors use the Malay language entirely throughout the presentation of information. Even though there are a small number of the course instructors who use the English language during presentation of information, it is found that 56.9% (58) of the Burmese foreign workers did not understand the information presented verbally in English and 48.03% (49) could not understand the information presented in written English.

Consequently, the focus of this research is as stated below:

**Problem Statement** - There is no suitable media yet to be use for presentation of information to foreign workers, apart from the Indonesian foreign workers, during the course where according to the early observation conducted by the researcher, it is found that using the *PowerPoint* as an available media for presentation of information during the course is less interactive and most of the texts use the Malay language in presenting the information to the foreign workers.

**Research Objective** – Focus is given on:

- designing a bilingual Safety and Health Induction Course software (IM-SmartSAFETY).
- developing a bilingual Safety and Health Induction Course software (IM-SmartSAFETY).
- evaluating the bilingual Safety and Health Induction Course software (IM-SmartSAFETY) developed in terms of:
  - a) helpfulness based on acquisition of knowledge or information to meet the needs of the foreign workers in the work place (construction site).
  - b) cognitive ability from the perspective of achievement of the foreign workers.

**Research Purpose** – To develop a bilingual multimedia Safety and Health Induction Course prototype software as an alternative information presentation medium to the Burmese foreign workers.

**Research Method** – The research is conducted by using model ADDIE in software development and quantitative research that is supported by qualitative research in evaluation.

**Research Sample** – All 30 Burmese construction workers are selected as research respondents where they were picked purposively from a 19 storey building project site, Kuala Lumpur.

**Research Instrument** – There are several main instruments used in this research, that is the survey form and the quiz questionnaire as well as interviews and observations for supporting the quantitative data.

However, this paper focuses only on the observations result obtain to support the quantitative data that has been carried out with regards to the usage of self protective gears as well as compliance with the safety warning signs by the Burmese foreign workers at the construction site.

### **3. Observations Results on the Burmese Construction Workers at the Construction Site After Using the IM-SmartSAFETY software**

To enhance this research, observations is also conducted through checklist on 30 of the Burmese construction workers at the construction site for 5 times to see the extend of the usage of self protective gears by the Burmese foreign workers after using or receiving information via the developed software. The observations found that the Burmese construction workers use 3 main self protective gears, that is the protective head gear (safety helmet) protective footwear (safety shoes) and protective hand gears (gloves) to carry out brick work and cement mixing during the observation period.

Through the first observation (25/4/2012) conducted, the researcher found that all the Burmese construction workers (30) use the protective head gears (100%), protective foot wear (100%) and protective hand gears (100%). Observation conducted also found that all of the 30 (100%) Burmese construction workers use the self protective gears correctly. Although, from the observation conducted, the researcher found that out of the 30 workers who use the self protective gears, 22 (73%) of the Burmese construction workers kept the gears used in a safe place. On the contrary, 8 (27%) of the workers did not keep the self protective gears in a safe place stating the excuse that they forget to keep the equipments in a safe place. From another aspects, it is found that 23 (77%) of the Burmese construction workers comply with the safety warning signs placed at the construction site and 7 (23%) more did not comply with the safety warning signs placed at the construction site because they are not aware of the safety warning signs placed at the construction site.

Second observation (28/4/2012) conducted found that 25 (83%) of the Burmese construction workers use the protective head gears and use it correctly while working at the construction site. Whereas, 5 (17%) more did not use the protective head gears. The researcher also found that only 2 (17%) of the workers did not use the appropriate protective foot wear. Whereas, 28 (93%) of the Burmese construction workers use the protective foot wear and use it correctly while working in the construction site. The excuse given by the Burmese construction workers for not using the protective head gears is because the workers do not feel comfortable when working in a hot climate apart from not being comfortable with the tightness of the helmet at the side of the head and did not use the protective foot wear because the appropriate shoes were wet and not usable.

Apart from that, the researcher also found that 18 (60%) of the Burmese construction workers use the protective hand gears and use them in the correct manner. Whereas, the rest of the 12 (40%) workers did not use the protective hand gears while carrying out brick works gave the excuse that the sub-contractors are not concerned to replace the damaged gloves for the workers. Therefore, it is found that 7 (23%) of the workers have suffered minor injuries during the observation period. As to the usage of self protective gears by these Burmese construction workers, the researcher found that all 30 (100%) of the workers kept their self protective gears used in a safe place during the observation period. From another aspect, the researcher found that only 6 (20%) out of the 30 Burmese construction workers did not comply with the safety warning signs placed at the construction site stating the excuse that they could not comply with the safety warning signs of using the safety helmet and shoes while at work in the construction site due to the reason that they do not feel comfortable with the hot weather and at the same time do not feeling comfortable with the tightness of the helmet at the side of the head and the wet shoes.

Through the third observation (30/4/2012) conducted, the researcher found that 22 (73%) of the Burmese construction workers use the protective head gear and they use the protective head gear correctly while carrying out works at the construction site. Whereas, 27 (90%) and 12 (40%) of the workers use the protective foot wear and protective hand gears respectively and use the protective foot wear and hand gears in the correct manner while carrying out work at the construction site. The rest of the 8 (27%) and 3 (10%) Burmese construction workers did not use the protective head gears and foot wear stating the excuse that they were uncomfortable using the safety helmet in the hot weather at any one time and are not comfortable using the wet protective shoes. Through the third observation also, the researcher found that 18 (60%) of the Burmese construction workers did not use the protective hand gears when doing brick works stating the excuse that the gloves were damaged and not replaced by the sub-contractors who are not concerned with replacing the gloves immediately. Following that, the researcher found that 13 (43%) of the Burmese construction workers have suffered minor injury during the third observation.

As to the self protective gears used by these 30 Burmese construction workers, it is found that all (100%) the workers kept the self protective gears used in a safe place, either in a store or in their living quarters respectively. From another aspect, the researcher found that throughout the observation, 19 (63%) of the Burmese construction workers comply with the safety warning signs placed at the construction site. Nevertheless, 11 (37%) of the remaining workers are found not complying with the safety warning signs placed in the construction site concerning usage of self protective gears such as protective helmets and shoes at the construction site due to the reason that they did not feel comfortable using the helmets in the hot environment at any one time and using wet shoes while working.

Based on the fourth observation (2/5/2012) conducted, it is found that all 30 (100%) of the Burmese construction workers use the protective head gears and foot wear respectively and use them in the correct manner while working at the construction site. Apart from that, it is found that 19 (63%) of these workers also use the protective hand gloves and use it correctly while carrying out brick work and cement mixing at the construction site and 11 (37%) of them did not use the protective hand gloves because the sub-contractor did not replace the damaged gloves for the workers. Based on the observation conducted, only 3 (10%) of the workers suffers minor injury as a result of not using the self protective gears when they should have while carrying out work. Therefore, from the self protective gears used by these Burmese construction workers, it is found that 9 (30%) of the 30 workers did not keep the self protective gears in a safe place. This happens because 5 (17%) of the workers are not concerned about keeping the gears used in a safe place. Meanwhile, 4 (13%) of them forget to keep the equipments in a safe place. From another aspect, the researcher also found that only 4 (13%) out of the 30 Burmese construction workers did not comply with the safety warning signs placed at the construction site with 2 (7%) of them stating that they are confident that no accident will happen because they are familiar with the situation of the work place and are skilled with the work that they do respectively.

The fifth observation (4/5/2012) conducted by the researcher found that 26 (87%) and 28 (93%) of the Burmese construction workers use the protective head gears and foot wear respectively and use both the protective gears correctly while carrying out work in the construction site. Meanwhile, only 7 (23%) of the Burmese construction workers use protective hand gloves and use it correctly during the observation period. The researcher found that most of these workers, that is, 23 (77%) of them did not use protective hand gloves because the sub-contractors did not replace the damaged gloves for the workers. Following that, 13 (43%) of the workers are found to suffer minor injuries as a result of not using these protective gears. Apart from that, the researcher also found that only 4 (13%) and 2 (7%) of the Burmese construction workers did not use the protective head gears and foot wear respectively giving the excuse of not being comfortable using the helmet in the hot climate and did not use the appropriate shoe as the shoes were wet. In conclusion, on the average of five observations conducted, it is found that all of these Burmese construction workers have kept the self protective gears used in a safe place. From another aspect, the researcher found that during these observation periods, 21 (70%) of the Burmese construction workers comply with the safety warning signs placed at the construction site. Meanwhile, 3 (10%) and 6 (20%) of the workers respectively did not comply the safety warning sign placed at the construction site stating the excuse that they feel confident that no accidents will happen as they are already familiar with the situation at the work place and the safety warning signs on the usage of self protective gloves could not be complied with because the gloves were not replaced by the sub-contractors.

#### **4. Conclusion**

The conclusion from the whole observation conducted by the researcher found that the average Burmese construction worker actually use the self protective gears, that is the protective head gears, protective foot wear and the protective hand gears based on the type of work they do, after using or receiving information from the IM-SmartSAFETY software during the initial observation. Nevertheless, the researcher noted that the protective head gears and protective foot wear which are known to be the mandatory equipments are used by most of the Burmese construction workers while working at construction site. However, only a very small number of the workers did not use the protective head gears and foot wear due to the reason stated that at any one time it is not comfortable with the hot weather condition, not comfortable with the tightness at the side of the head that force these workers to not use the helmets while working at the construction site and not comfortable using wet shoes while at work. Nevertheless, the researcher found that usage of the protective hand gears during the first observation is more encouraging where all the workers use the gloves while at work.

But, on the second, third, fourth and fifth observation shows that usage of these gloves decreases among the Burmese construction workers. This issue is due to the lack of concern by the sub-contractor to replace the damaged gloves for the workers causing a number of workers to not use the gloves while at work and they suffer minor injury during the observation period. Apart from that, the researcher also found that the average Burmese construction worker kept the self protective gears used in a safe place. Only a small number did not keep the gears used in a safe place with the excuse that they forget and shows that they are not too concerned about keeping the gears in a safe place. From the aspect of complying with the safety warning signs at the construction site, the researcher found that only a number did not comply with the safety warning signs placed at the construction site where, on the first observation it is found that workers did not comply with these safety warning signs as they were not aware of the safety warnings signs that are placed at the construction site. However, the subsequent observation found that most workers did not comply with the safety warning signs placed at the construction site because they are confident that no accidents will happen as they already know the situation in the work place and are skilled with the work done. Other causes for not complying with the safety warning signs on using the self protective gears by the workers at the construction site are not being able to use the helmet, shoes and gloves as they are not comfortable with the weather conditions, physical feature of the helmet and the condition of the wet shoes, in addition to the sub-contractors not replacing the damaged gloves for the workers.

On the whole, after conducting observations, the researcher conclude that among factors causing the situation where workers do not use self protective gears is the fact that the sub-contractors are less concern about replacing the damaged gloves for the workers. Apart from that, the Burmese construction workers' attitude that take for granted the aspect of using self protective gears and the compliance with the safety warning signs, such as, not being aware of the safety warning signs placed at the construction site, confident that accidents will not happen because they are already familiar with the work place conditions and skilled with the work done even if they do not use the self protective gears, not able to use the protective head gear due to the discomfort of hot weather situation and the physical feature of the helmet that do not fit the head as well as not being able to use the protective foot wear because the shoes were wet.

No.	Item	Amount (%)				
		M-1	M-2	M-3	M-4	M-5
	<b>SELF PROTECTIVE GEARS</b>					
1	Self protective gears USED by the Burmese foreign workers according to the type of work carried out at the construction site:	-	-	-	-	-
	a. protective head gear	30(100)	25(83)	22(73)	30(100)	26(87)
	b. protective foot wear	30(100)	28(93)	27(90)	30(100)	28(93)
	c. protective hearing gear	-	-	-	-	-
	d. protective face and eye gear	-	-	-	-	-
	e. safety clothes/jacket	-	-	-	-	-
	f. protective hand gear	30(100)	18(60)	12(40)	19(63)	7(23)
	g. protective respiratory gear	-	-	-	-	-
	h. safety belt	-	-	-	-	-
2	Based on the information from question 1, among the self protective gears that is NOT USED by the Burmese foreign workers according to the types of work carried out at the construction site:	-	-	-	-	-
	a. protective head gear	-	5(17)	8(27)	-	4(13)
	b. protective foot wear	-	2(7)	-	-	2(7)
	c. protective hearing gear	-	-	-	-	-
	d. protective face and eye gear	-	-	-	-	-
	e. safety clothes/jacket	-	-	-	-	-
	f. protective hand gear	-	12(40)	18(60)	11(37)	23(77)
	g. protective respiratory gear	-	-	-	-	-
	h. safety belt	-	-	-	-	-
		-	-	-	-	-

3	Reason why the Burmese foreign workers DID NOT USED the self protective gears /completely according to the type of work:					
	a. feels uncomfortable	-	6(20)	11(37)	-	6(20)
	b. constricts movement	-	-	-	-	-
	c. unable to concentrate their full attention on the work	-	-	-	-	-
	d. work done is not dangerous	-	-	-	-	-
	e. confident that accidents would not happen because they are already familiar with the situation of the work place	-	-	-	-	-
	f. confident that accidents would not happen as they are skilled with the work done.	-	-	-	-	-
	g. no emphasis by the employer	-	-	-	-	-
	h. insufficient self protective gear provided	-	-	-	-	-
	i. others	-	12(40)	18(60)	11(37)	23(77)
4	Based on the information from question 1, among the self protective gears USED CORRECTLY by the Burmese foreign workers according to the type of work carried out at the construction site:	-	-	-	-	-
	a. protective head gear	30(100)	25(83)	22(73)	30(100)	26(87)
	b. protective foot wear	30(100)	28(93)	27(90)	30(100)	28(93)
	c. protective hearing gear	-	-	-	-	-
	d. protective face and eye gear	-	-	-	-	-
	e. safety clothes/ jacket	-	-	-	-	-
	f. protective hand gear	30(100)	18(60)	12(40)	19(63)	7(23)
	g. protective respiratory gear	-	-	-	-	-
	h. safety belt	-	-	-	-	-
5	Based on the information from question 1, among the self protective gears NOT USED CORRECTLY by the Burmese foreign worker according to the type of work carried out at the construction site:	-	-	-	-	-
	a. protective head gear	-	-	-	-	-
	b. protective foot wear	-	-	-	-	-
	c. protective hearing gear	-	-	-	-	-
	d. protective face and eye gear	-	-	-	-	-
	e. safety clothes/jacket	-	-	-	-	-
	f. protective hand gear	-	-	-	-	-
	g. protective respiratory gear	-	-	-	-	-
	h. safety belt	-	-	-	-	-
6	Reason why Burmese foreign workers DO NOT USE the self protective gears CORRECTLY according to type of work carried out at the construction site:	-	-	-	-	-
	a. not comfortable	-	-	-	-	-
	b. constrict movement	-	-	-	-	-
	c. unable to concentrate fully on the work	-	-	-	-	-
	d. work done is not dangerous	-	-	-	-	-
	e. confident that accidents will not happen as they are already familiar with the condition of work place	-	-	-	-	-
	f. confident that accidents will not happen as they are skilled with the work done	-	-	-	-	-
	g. no emphasis by the employer	-	-	-	-	-
	h. difficult to follow the method of using the self protective gears correctly	-	-	-	-	-
	i. more comfortable to follow own usage	-	-	-	-	-

	j. others	-	-	-	-	-
7	Types of accidents that happens in the event that the self protective gears is NOT USED/ NOT CORRECTLY USED during observations:	-	-	-	-	-
	a. falls from a level or higher floor	-	-	-	-	-
	b. crush by falling object	-	-	-	-	-
	c. stepped on sharp object	-	-	-	-	-
	d. bangs or struck the moving engines	-	-	-	-	-
	e. exposed to dangerous rebound objects or sparks	-	-	-	-	-
	f. exposed to or struck by electric shock	-	-	-	-	-
	g. minor injuries	-	7(23)	13(43)	3(10)	13(43)
	h. others	-	-	-	-	-
8	Category of accidents that happens if self protective gears are NOT USED CORRECTLY:	-	-	-	-	-
	a. fatal accident	-	-	-	-	-
	b. permanent disability	-	-	-	-	-
	c. temporary disability	-	-	-	-	-
9	Burmese foreign workers keep their self protective gears in a safe place.	22(73)	30(100)	30(100)	21(70)	30(100)
10	Burmese foreign workers DID NOT keep their self protective gears in a safe place.	8(27)	-	-	9(30)	-
11	Reason why the Burmese foreign workers DID NOT keep the self protective gears used in a safe place:	-	-	-	-	-
	a. there is no safe place.	-	-	-	-	-
	b. workers did not keep the equipments in a safe place due to their careless attitude	-	-	-	5(17)	-
	c. forget to keep the equipment in a safe place.	8(27)	-	-	4(13)	-
	d. others	-	-	-	-	-
	<b>OTHERS</b>	-	-	-	-	-
1	Burmese foreign workers COMPLY with the safety warning signs placed at the construction site.	23(77)	24(80)	19(63)	26(87)	21(70)
2	Burmese foreign workers DID NOT COMPLY with the safety warning signs placed at the construction site.	7(23)	6(20)	11(37)	4(13)	9(30)
3	Reason why the Burmese foreign workers DID NOT COMPLY with the safety warning signs placed at the construction site:	-	-	-	-	-
	a. Did not understand the meaning of the safety warning sign	-	-	-	-	-
	b. Not aware of the safety warning signs placed at the construction site	7(23)	6(20)	11(37)	-	-
	c. confident that accidents will not happen as they are already familiar with the condition of the work place	-	-	-	2(7)	3(10)
	d. confident that accidents would not happen as they are skilled with the work done	-	-	-	2(7)	-
	e. others	-	-	-	-	6(20)

Schedule 1 Summary of Observation Through Checklist on the 30 Burmese Foreign Workers

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