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## Improving Safety Culture: Positive Environmental Impacts of Information Delivery to Foreign Workers

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### Abstract

The present research strives to improve safety cultures to reduce work-related injuries in the hazardous environment of the construction industry for foreign workers using a training course. It focuses on developing a framework for needs of information delivery used by foreign workers based on misunderstanding problem in, Health, Safety and Environment Induction Training (HSEIT). The aim of this study is to discover the needs and redevelop a framework for information delivery for foreign workers in the course. This study has been carried out using quantitative approach with convenient sampling. The respondents are foreign workers who are involved in construction works in a natural environment. They are trained how to protect themselves against hazardous environmental and ecological events. Research findings revealed that among the needs for information delivery by the foreign workers in training course include printed text in their own language for the notes, books, booklets; oral delivery is also expected to be in their own language, which includes face-to-face delivery, slides, film, and video. This is found to be very beneficial when they confront dangerous environmental risks. Also, they need printed visual materials like notes as well as video. In overall, the needs framework is able to greatly impact and contribute in construction industry, in which it could be the guidelines and alternative reference for various parties like the course instructors, safety officer, and the Construction Industry and Development Board (CIDB). In fact, the environmental framework is able to increase the gained information and understanding in satisfying the needs of the foreign workers in the natural site besides advancing the instructors' delivery of the contents in training course and eliminating the language barrier in HSEIT. It is also potential to help the CIDB achieving the course objective and increase the safety performance in open environments as well as the safety awareness among foreign workers. The findings of the study indicate that the training has played a role in decreased work-related injuries and changing attitudes to safety training.

**Keywords:** safety culture, training course, open environments, foreign worker

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### INTRODUCTION

Reducing accidents and incidents in the workplace is dependent upon changing workplace behaviour both individually and collectively; that is what individuals do, and what is accepted practice in the workplace. Those actions are influenced by the safety culture that surrounds them which in turn is specifically mediated by the acts of management. The Malaysian Construction Industry Development Board Act 1994 defines construction industry as an industry dealing with development works and full of environmental risks. It has been an industry that leads towards national economic generation and development (Md Zyadi et al. 2009). However, based on previous findings,

construction industry is highly risky, complex, and dangerous in particular if it is done in open environments (Edwards and Holt 2008). Accordingly, every individual involves directly with construction works in natural construction sites are mandatory to attend a special training course namely environment, Health, Safety and environment Induction Training (HSEIT) provided by the CIDB. Generally, objectives of the course are to increase awareness among the workers on the danger in natural construction sites, to minimize the potentials of injury and damage over the workers, the public, or public property by ensuring the rules and regulations are obeyed and implemented in construction sites.

It is also aimed at inculcating a positive culture over the environment, ecosystem, safety and health among workers in the sites as well as their welfare. However, the objectives are not well-achieved when dealing with foreign workers because the contents are delivered in Malay, in which the foreign workers are not able to understand (Nurul Azita et al. 2014, Al-esami et al. 2018). The language barrier has been tackled as a serious matter Ananthan (2014) not only in Malaysia, but also in developed countries like Australia Loosemore and Andonakis (2007), United States O'Connor et al. (2005), and United Kingdom (Bust et al. 2008). Accordingly, based on the findings by Cheng and Wu (2013), it is true that the industry and appropriate parties need to improve the quality of environment, health and safety training including the provision of safety precaution procedures, safety costumes, and appropriate tools to ensure the safety is guaranteed. In fact, the effectiveness of the safety training is a factor for death, injury, and loss (Robotham 2001). As a result, based on the problem in current practice, this study focuses on determining the framework for the needs on information delivery medium for foreign workers on ecological basis.

### THEORY OF UNDERSTANDING

Generally, the development of a framework applies a theory as the base to ensure the learning process is directed towards its actual purpose. In this study, the theory of understanding is applied in the framework for the needs of information delivery medium among foreign workers in HSEIT to ensure it is perfect and that it increases the workers understanding on the contents. Ananthan (2014) as well as Bloom through Mujiyanto (2007) agree that understanding refers to the ability of a person to understand the meaning from the contents being learned and the ability of a person in understanding from the known fact followed with factors influencing the learning outcome (cognitive, motivation, and learning quality). Mujiyanto (2007) extends it by addressing that the purpose of learning and teaching, instructors, learners, teaching activities, the environment including teaching materials are other factors that determines the level of understanding.

Hence in this study, the utilization of this theory is appropriate so that the foreign workers could understand, digest, and translate the gained information correctly. Through the theory, the framework for the needs of information delivery medium among foreign workers in HSEIT has been well-formulated, perfectly fulfilling the needs of the foreign workers, leading to appropriate learning activities, and improving the

**Table 1.** Information Delivery Forms Preferred by Myanmar Foreign Workers in HSEIT

Preferred information delivery form	Findings (%)
Picture	54.9% (56)
Video	82.4% (84)
Printed visual	26.5% (27)
Oral	24.5% (25)
Printed without visual	18.6% (19)

foreign workers' understanding, as well as more importantly achieving the objective of the course.

### The Needs of Foreign Workers in environment, Health and Safety Induction Course

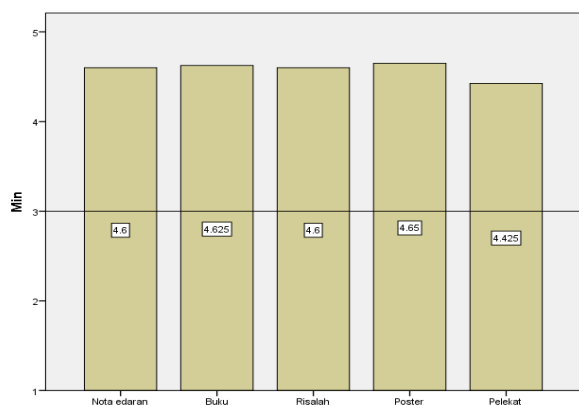
Previously, foreign workers have been found unable to understand the contents delivered in the HSEIT. Regarding this, Ananthan (2014) discovered that foreign workers in Malaysia has suggested that the teaching medium is translated into their first language, which requires a translator, as well as local instructors need to learn their first language and they need to learn Malay language. It is necessary to support their understanding on the contents and commands in the construction sites. Those findings are similar with those found by (Cheng and Wu 2013). Such situation was also found in Australia, in which Loosemore and Andonakis (2007) have found that 89.9% of foreign workers agreed that they would have understood better in the training contents are delivered in their first language.

Meanwhile, in terms of information delivery medium, Nurul Azita et al. (2014) when dealing with workers from Myanmar has found the details as listed in **Table 1**.

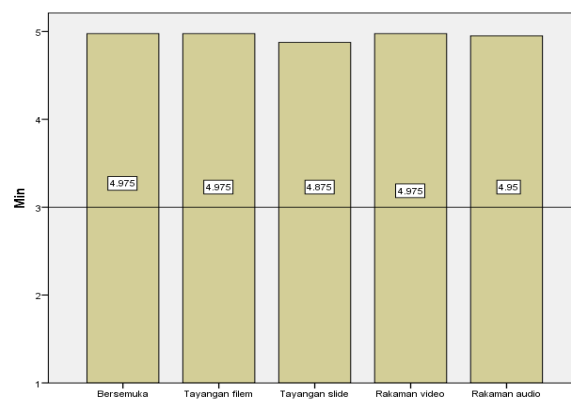
### METHODOLOGY AND SAMPLING

This study is carried out using quantitative approach (Creswell and Clark 2007). The respondents are scoped to workers who have attended HSEIT or those who have a green card in northern region. Obviously, they are construction workers working in construction sites, as underlined by CIDB.

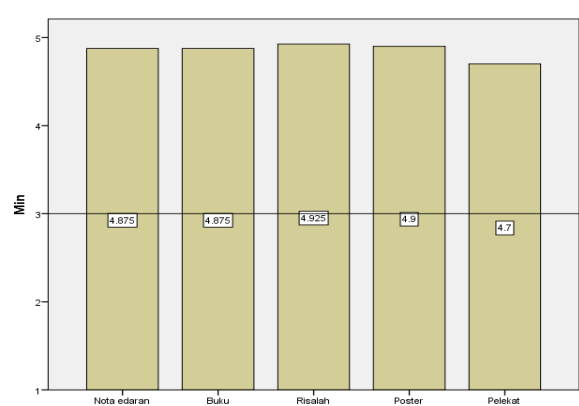
Altogether 40 foreign workers have been selected through convenient sampling, in which they were considered able to participate well in this study (as recommended by Saunders et al. (2012) without really bothering the actual number of the population. The actual scenario shows that the actual population is not recorded, and that the foreign workers always move from one site to another. This makes tracing the actual population difficult. Hence, those could be grabbed, and engaged were taken as the sample. Data were collected through a questionnaire.



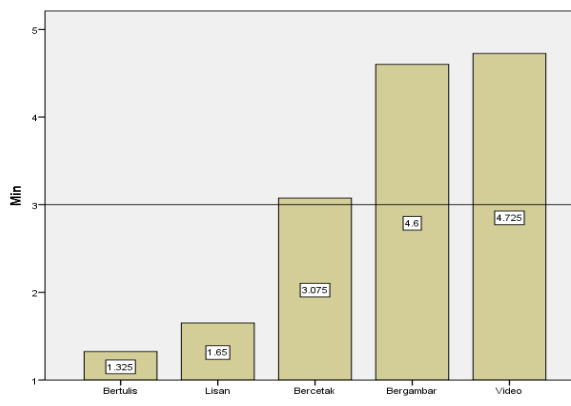
**Fig. 1.** The Needs for Printed Text in the Workers' First Language



**Fig. 3.** The Needs for Oral Information in Workers' First Language



**Fig. 2.** The Needs for Printed Visuals



**Fig. 4.** Preferred Information Delivery by Foreign Workers in HSEIT

## FINDINGS

### The Needs of Information Delivery Medium by Foreign Workers in HSEIT

The graphs the following figures describe a number of information delivery forms preferred by the foreign workers in HSEIT. They fulfil the needs of tasks in construction sites.

**Fig. 1** visualizes that the foreign workers need printed materials in their first language. This applies to all notes, books, booklets, posters, and stickers. It is obvious because their means are greater than 4, (4.6, 4.625, 4.6, 4.65 and 4.425 respectively) (Hamid et al. 2008).

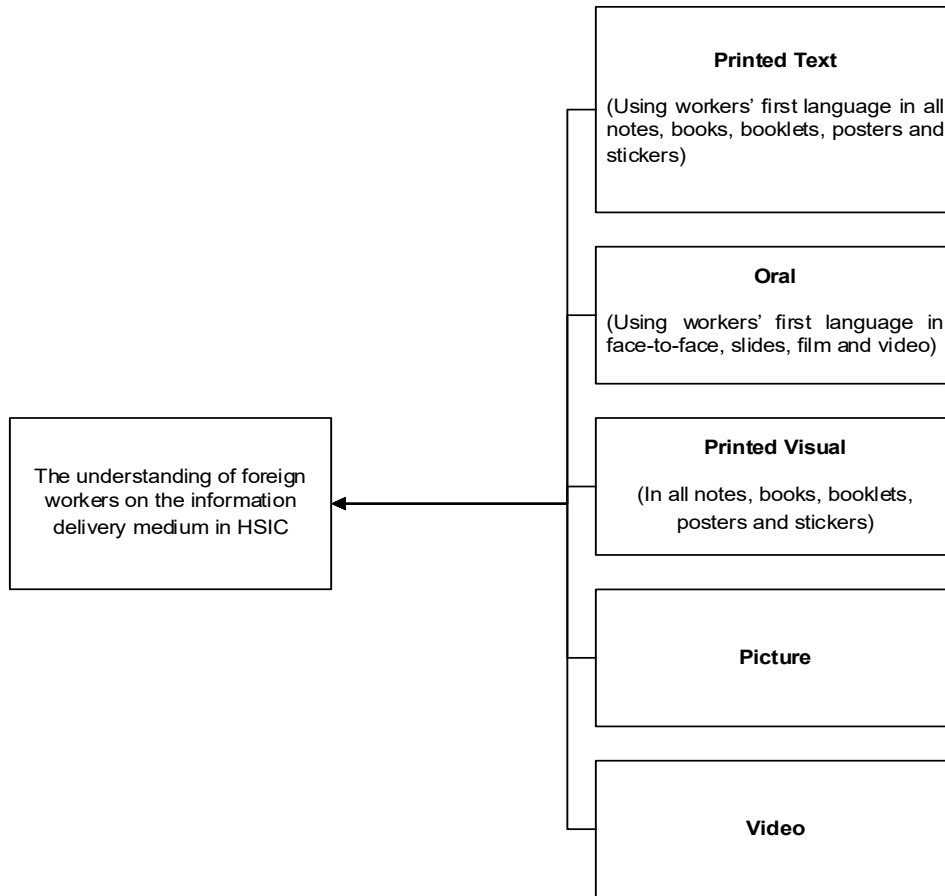
**Fig. 2** displays the needs of printed visuals for foreign workers. It is seen that their means are extremely high, almost reaching the maximum value (5 – strongly agree). Thus, it could be understood that foreign workers need for printed visuals for notes (mean = 4.875), books (mean = 4.875), booklets (mean = 4.925), poster (mean = 4.9) and stickers (mean = 4.7) (Patel et al. 2010).

**Fig. 3** visualizes the needs of oral information delivery medium in workers' first language. It is seen that all five forms are really required to be in their first language, with means almost reaching 5 (strongly agree). In detail, with reference to the figure, face-to-face, film and video obtain the highest mean (4.975), followed with audio (4.95) and slides (4.875).

**Fig. 4** visualizes the preferred information delivery forms in the Environment, Health and Safety Induction course by foreign workers. Referring to the figure, video delivery is the most preferred (mean = 4.725), followed with picture (4.6). Printed information is still preferred by foreign workers (3.075). In contrast, printed and oral forms of delivery are not preferred (means = 1.325 and 1.65 respectively).

### The Framework for the Needs of Information Delivery Medium for Foreign Workers in HSEIT

The findings of this study shows a redevelopment of the framework for the needs of information delivery medium for foreign workers in HSEIT. The framework has been formed based on the theory of understanding to determine the ability of foreign workers in



**Fig. 5.** The framework for the Needs of Information Delivery Medium among Foreign Workers in HSEIT

understanding the information delivered using their first language through printed text and oral. For printed text, it cover notes, books, booklets, posters, and stickers. Meanwhile for oral, it covers face-to-face, slides, film and audio. Also, this study finds that printed visual is preferred too, which includes notes, books, booklets, poster and sticker. Additionally, this study discovers that foreign workers prefer video and picture information delivery forms for the Environment, Health and Safety Induction course. Eventually, the needs and preference of the foreign workers on the information delivery has formed the framework in **Fig. 5**.

### DISCUSSION

The findings showcase the needs of foreign workers for appropriate information delivery medium based on the problem of understanding the training contents. Among the needs addressed by the foreign workers in supporting their understanding on the contents on the environment, safety and health in construction sites include the types of information delivery medium and the forms of information being delivered. Particularly, all printed and oral materials must be in their first

language. No matter how beautiful the slides and video are, if they are not in the workers' first language, they could just enjoy the show, but are not able to grab the actual contents. This is similar to those in printed form. Hence, the language is the connector between them and the actual contents. On top of that, the contents should be delivered in visual form, either picture or video. Thus, text could be used, but with little amount when really necessary, in supports for the contents in visual forms.

Such findings are in-line with those found by Ananthan (2014), Salleh (2014) and Loosemore, Andonakis (2007), in Malaysia and Australia. Besides discovering the needs for the variety of the information delivery forms, they also found the needs for the contents to be in the workers' first language. Also, the findings in this study are in-line with the previous findings, in which workers from Myanmar by (Nurul and Azita 2014). Particularly, the workers were found happy with picture (54.9% (56)) and video (82.4% (84)) (Shafii et al. 2009, Tel et al. 2018).

## CONCLUSION

In overall, the redevelopment of the framework based on theory of understanding covers a number of needs, determined through the selected respondents. Among the needs addressed by the respondents, who are foreign workers, in ensuring the effectiveness of the HSEIT include printed text in their first language (notes, books, booklets, posters, and stickers) and oral medium (face-to-face, slides, film, and video). Besides that, workers prefer information in picture and video forms as opposed to text and oral. The framework is potential to greatly impact in contribute in the

construction industry in natural environments. Particularly, it could be the guidelines and an alternative reference for authorized parties such as the instructors, safety officers, and CIDB in improvising their teaching materials. Also, the framework is able to increase the foreign workers understanding on the contents delivered in the HSEIT and make them aware of the danger in construction sites. Eventually, they could make precautions actions against hazardous environmental events which further reduce death, injury, and damage cases.

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