

A Study on the Safety Management of Foreign Workers in Construction Site

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Abstract

Construction site accidents in Korea can result in work stoppages, which in turn lead to claims and adversely affect project progress. Although the number of fatal accidents has decreased in recent years, the construction industry still records more than twice as many fatalities compared to other industries. One contributing factor to this is the increasing number of foreign workers. Due to language barriers, lack of knowledge and experience, and cultural differences, foreign workers are more susceptible to frequent accidents. Therefore, this study seeks to investigate and analyze the current state of safety management for foreign workers at construction sites. Through this research, it will be possible to review the direction of safety education programs targeting foreign workers. Furthermore, the findings are expected to facilitate the assessment and improvement of safety management practices not only for foreign workers but also for domestic workers.

Keywords: *Safety Management, Foreign Workers, Construction Site Safety Management, Fact-Finding Survey.*

Introduction

The domestic construction industry is currently facing a severe labor shortage due to a declining population and widespread reluctance to engage in so-called 3D (dirty, dangerous, and difficult) jobs. As the sector remains at the beginning of adopting mechanized and automated production methods, the substitution of human labor is not yet feasible. Consequently, the workforce is being supplemented through the employment of foreign laborers[1, 2].

According to the 2023 industrial accident fatality statistics infographic based on the survivors' benefit approval criteria by the Korea Occupational Safety and Health Agency, there were 812 accident-related deaths in 2023, of which 356 occurred in the construction industry[3]. Although the number of fatalities has been declining, the construction sector still records more than twice as many deaths as the manufacturing industry, which ranks second in fatalities. Some studies have attributed this high fatality rate to the increasing number of foreign workers at construction sites. The most frequently cited factors contributing to the higher incidence of industrial accidents among foreign workers include difficulties in communication leading to poor understanding of work instructions, lack of prior experience in construction work, and challenges in adaptation due to cultural differences. Furthermore, a workplace environment that prioritizes construction progress over safety has also been identified as a contributing factor[4, 5].

In addition, insufficient industrial safety and health education on construction sites, as well as the absence of basic safety and health training, have been recognized as underlying causes. Therefore, the present study aims to investigate the adequacy of safety equipment guidance, the clarity of safety signage, and the effectiveness of safety instructions at construction sites.

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Analysis of the Current State of Safety Management for Foreign Workers

Developing Survey Questions

This study conducted a survey to examine the current state of safety management for foreign workers at construction sites.

Jeong and Shin (2012) conducted a survey targeting domestic construction companies to propose measures for reducing safety accidents involving foreign workers. The survey data were analyzed by comparing percentage ratios among responses. The analysis revealed several problems related to poor working conditions, including communication difficulties, long working hours, training focused mainly on Korean workers, task assignments that did not consider workers' expertise, inadequate safety devices and facilities, insufficient work skills, and maladaptation to work environments different from those in their home countries. Accordingly, they concluded that the frequency of accidents among foreign workers was relatively high[6]. Park (2018) conducted a survey to analyze the impact of the safety work environment on safety awareness among foreign workers, providing countermeasures and reference materials for reducing safety accidents. The survey was structured into three categories: safety work environment, subjective accident risk, and safety behavior intention. The results demonstrated that the safety work environment significantly influenced both subjective accident risk and safety behavior intention. It was further found that the physical environment, physical health, comprehension of safety knowledge, and conditions of employment had a strong effect[7]. Kim and An (2021) classified the causes of construction site safety accidents into direct and indirect causes. The direct causes were human factors arising from unsafe behaviors, while the indirect causes included insufficient safety training and a general lack of safety awareness. To identify these causes, a survey was conducted focusing on areas such as workers' physical environment, employment conditions, job attitude, language and cultural background, knowledge comprehension, subjective accident risk, and safety behavior intention. The analysis concluded that, in order to reduce safety accidents involving foreign construction workers, priority should be given to physical measures such as safety facilities, personal protective equipment (PPE), and signage. Following this, educational measures, cognitive-perceptual approaches, and strategies to reduce physical strain were considered important[8].

In previous studies on safety accident reduction measures for foreign workers in construction sites, survey methods were used to examine the current situation and contributing factors. Surveys allow for a clear definition of the data sample scope and facilitate the derivation of rapid and objective results. Therefore, this study employs a survey approach to analyze the current status of safety management. The questionnaire was designed with the aim of identifying respondents' demographic information, assessing the presence and effectiveness of safety training, verifying the installation of safety facilities, and evaluating the provision and use of personal protective equipment (PPE). In addition, questions were included to assess respondents' knowledge of safety accident response procedures, their understanding of safety signs, and their comprehension of safety instructions. The survey items developed for this purpose are presented in the following table[9, 10, 11].

Table 1. Questionnaire of the Survey

No.	Question	Selection
1-1	Is safety training conducted for at least 12 hours every six months?	Yes / No
1-2	Is the on-site safety training understandable?	Strongly agree / Agree / Undecided / Disagree / Strongly disagree
1-3	Why safety training doesn't understand?	Language problems / Long training time / Difficult to follow / Other
2-1	Are the following safety features installed?	Yes / No
3-1	Do you know what the following signs mean?	Yes / No
3-2	Are there enough safety signs on site?	Strongly agree / Agree / Undecided / Disagree / Strongly disagree
3-3	Do the installed signs make complete sense?	Strongly agree / Agree / Undecided / Disagree / Strongly disagree
3-4	What's the reason that you don't understand the sign?	- Difficult to understand - Too old to understand - Installed in a hard-to-see location
4-1	Was the following safety gear be provided?	Yes / No

4-2	Do you wear your protective gear at all times during your shift?	Strongly agree / Agree / Undecided / Disagree / Strongly disagree
4-3	Why aren't you wearing protective gear?	Equipment inconvenience / poor equipment condition / poor hygiene / others
5-1	How would you rate your level of familiarity with your Korean manager?	10-point scale
5-2	Why do you think it's not intimate?	Hierarchy / Not treated with respect as a worker / Not given direct work instructions
5-3	Do you follow all the rules without a supervisor?	Strongly agree / Agree / Undecided / Disagree / Strongly disagree
5-4	Why is it not compliant?	To get things done faster / hassle / not understanding why seniors follow safety practices

The survey questionnaire was translated into Thai, Vietnamese, Mongolian, Chinese, and English, reflecting the languages predominantly spoken by workers on site. The construction sites were categorized as Site A and Site B, from which 38 and 21 responses were collected, respectively.

Survey Results

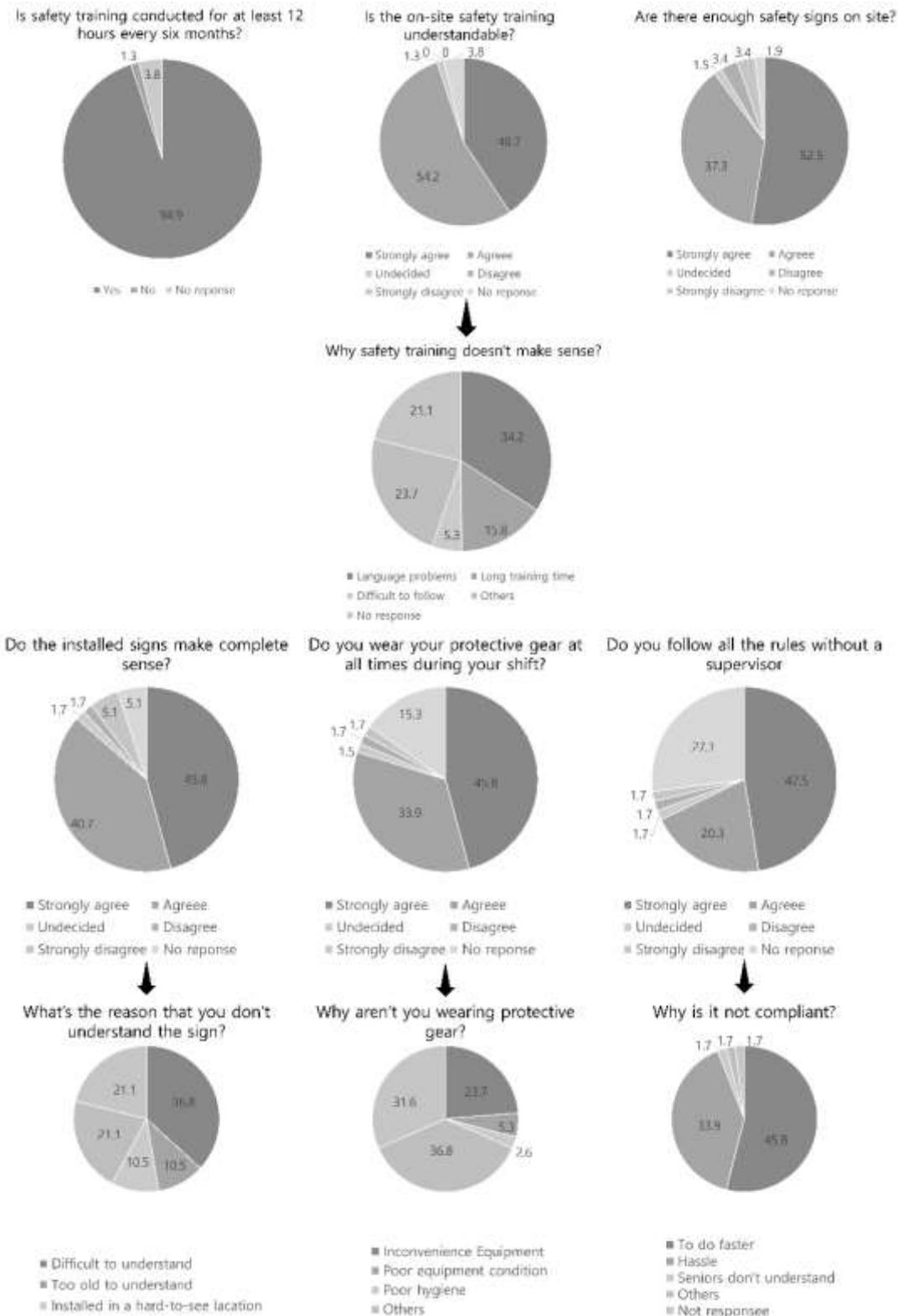


Fig 1. Graph of Survey Results

In the survey conducted in this study, 94.9% of respondents reported having undergone regular safety training. Regarding understanding of the safety training, 54.2% answered “Strongly Agree” and 40.7% answered “Agree,” resulting in a combined positive response rate of 94.9%. In the fire response procedure test, which was designed to assess understanding of safety training, the overall correct

answer rate was 57.6%, indicating that although more than half of the respondents answered correctly, the score was relatively low.

In the survey on the installation of safety facilities at construction sites, 89.8% responded positively to the existence of safety signs, and 86.5% indicated they understood the signs. Among the causes cited for the lack of understanding, language barriers accounted for the largest proportion (36.8%), followed by improper installation locations (21.1%).

For the question on consistent use of personal protective equipment (PPE), 79.7% responded positively. Among the reasons given for not wearing PPE, “other” was the most common at 36.8%, followed by “no response” at 31.6%, indicating a lack of definitive answers. “Discomfort” was cited by 23.7% of respondents.

Regarding communication, “no response” was the most frequent answer in the familiarity-related question. Among those who indicated they did not feel familiarity, the most frequently cited reasons were hierarchical relationships (29.8%) and a lack of direct communication (25.5%). Nevertheless, 67.8% reported that they consistently complied with safety regulations.

Results and Discussion

One of the main causes of safety accidents at construction sites is the increasing number of foreign workers. In addition to known causes of higher industrial accident rates among foreign workers—such as communication difficulties leading to poor comprehension of work instructions, lack of prior experience in construction, and difficulties adapting due to cultural differences—insufficient industrial safety and health education has also been identified, with some worksites providing no basic training at all.

Accordingly, this study conducted a survey targeting foreign workers to examine compliance with safety education and the smooth delivery of safety instructions at construction sites. The survey was conducted at two construction sites and was translated into Thai, Vietnamese, Mongolian, Chinese, and English. A total of 59 responses were collected from the two sites.

The survey results showed that both the implementation of safety training and understanding of the training received positive response rates exceeding 90%. The presence of safety signs also received positive responses exceeding 89%, and understanding of the signs reached 86%. Consistent use of PPE was reported by 79.7% of respondents. However, language barriers and improper placement of signs accounted for the majority of reasons for misunderstanding safety signs.

Regarding reasons for not wearing PPE, “no response” accounted for more than one-third of answers, making it difficult to derive clear conclusions; excluding non-responses, “other” was most common, followed by “discomfort.” Similarly, a high proportion of non-responses was observed in communication-related questions, leading to insufficient data collection. Among valid responses, hierarchical relationships were cited most frequently as the reason for lack of familiarity between workers.

The findings indicate that safety training and compliance with safety regulations are generally well observed on site. However, a high proportion of non-responses in some questions prevented accurate analysis of reasons for non-compliance with safety regulations or non-use of PPE. Furthermore, the small number of returned questionnaires suggests that the survey results may not be representative of the overall safety compliance status of foreign workers.

This study recommends that revising the questionnaire to improve understanding among foreign workers, as well as increasing the number of items, would enable more accurate data collection. The results indicate that addressing language barriers should be a priority in reducing construction site accidents, and that voluntary participation of foreign workers in complying with safety regulations is essential. Moreover, fostering familiarity and rapport between Korean supervisors and foreign workers is crucial for effective safety management, and the findings of this study are expected to serve as baseline data for establishing future directions in safety management for foreign workers.

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