

How to ensure construction workplace safety with human resource management strategies

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Abstract: The construction industry is known for its high risks and has been responsible for numerous accidents and fatalities worldwide. Employers have a responsibility to provide a safe and healthy working environment for their employees, encompassing physical, physiological, and psychological well-being, known as work health and safety (WHS). Despite existing laws and regulations aimed at protecting construction workers, accidents still occur frequently. This essay explores the implementation of the Training-With-Industry (TWI) theory as a human resource management strategy to improve safety in the construction industry. It highlights the economic, legislative, ethical, and motivational damages caused by workplace accidents and emphasizes the importance of addressing safety concerns from the perspective of human resource managers. The essay proposes two TWI-based training methods for construction workers: job instruction training and safety awareness training. Job instruction training involves experienced workers mentoring and guiding new employees, fostering a safer work environment, and reducing the risks associated with inexperienced workers. Safety awareness training aims to enhance safety consciousness among both employees and employers, emphasizing the proper use of personal protective equipment and conducting emergency drills. The essay concludes by stressing the significance of prioritizing workplace safety and encourages human resource managers to incorporate TWI strategies into their management plans to ensure the well-being of construction workers.

Keywords: Work Health and Safety, Training-With-Industry, Human resource management

1. Introduction

Construction business is one of the most common industries all over the world, it created numerous jobs for society, and it's helpful to cope with unemployment. However, the construction industry is also one of the most dangerous occupations on the planet. It has been proved that the construction industry has caused plenty of accidents, which led to worker injuries or even fatalities (Park and Kim, 2013; Awwad et al., 2016; Yoon et al., 2013).

It's the employer's obligation to provide their employees with a safe working environment, it's not only just about safety, but also healthy, managers need to concern about their employee's complete healthy and safety, including physical, physiological, and psychological conditions, it's called work health and safety (WHS). For now, governments all over the world already issued some laws to protect the safety of construction workers, but there are still many work accidents in the construction industry. There were more than 73,000 injuries were recorded in the construction industry in America in 2014 (Ghodrati et al., 2018 citing Department of Labor, 2014). Working accidents can cause huge damage to organizations, including four parts, economic damage, legislation, ethical influence, and motivation damage.

The statistics of the UK Healthy and Safety Executive (HSE) shows that the economic damage for organizations from working accidents took 5-10% of the profit in all business (Yoon et al., 2013). Both employer and employee want to eliminate work-related injury and fatality, human resource manager is one of the key factors to provide health and safety in the workplace and to implement appropriate human resource strategies to ensure both employer and employee's well-being in the workplace. The existing report shows that construction accidents can be divided into several factors, such as inappropriate human behaviors, safety equipment lack of maintenance, and limited safety culture (HSE, 2009; Chidambaram, 2016). Inappropriate working behaviors caused plenty of working injuries even fatalities, and inappropriate working behaviors have mainly happened among new construction workers, they lack

experience and suitable training. This essay was from a human resource manager's perspective, providing systemic human resource plans for human resource managers to train their construction workers, and educate workers to work in safer approaches, to decrease working accidents. This paper illustrated Training-With-Industry (TWI) theory in human resource management strategy, essay was divided into three parts, context background, theory background, then according to the theory background to provide managerial implications and recommendations.

2. Contextual background

According to the report from Safe Work Australia, there were 36 construction workers sadly passed away in 2021 in Australia (safe work Australia, 2021), and the construction industry was the third most dangerous occupation in 2021 in the country, there were only agriculture, forestry, and fishing and manufacturing caused more fatalities than construction site. One of the most obvious reasons for these fatalities is the inappropriate management, which caused employees unsafe behaviors in working approaches. Under the serious consequence of imperfect management, it's highly suggested for company owners and managers issue TWI plans in their organizations, especially for those new construction workers.

In 2020, there were hundreds of workers gathered around Western Australia's Parliament House and fought for the new laws, which could make workplace manslaughter become a criminal offense, and the governments in Queensland, Victoria, and the Australian Capital Territory have already issued the laws, which define workplace manslaughter as a criminal offense. It means that company owners and managers are not just fined with money, but also included prison penalties, the new law stated that managers could receive stricter penalties if they caused workplace manslaughter. New labor legislation brought new high demand for safety management strategies to organizational owners and human resource managers, in this crucial condition, TWI could be an efficient solution.

3. Theoretical background

Training-With-Industry theory was initially brought out during the period of World War Two in America (Graupp and Wrona, 2010), it aims to reinforce the quality of military productions, in order to support the war front line, provide better fighting performance for the US army and their allies (Huntzinger, 2016). Many years later, TWI theory was used in the manufacturing industry to make more reliable products, at the beginning, the target education group is the owners, managers, leaders, and experienced operators, to teach them manufacturing knowledge and skills, by getting familiar with the producing processing, in order to find the flaws and unsafe working procedure, then focus on the shortages, figure out solutions to improve working efficiency and working safety and try to make sure every employee can put his best effort in the work. TWI strategy has been used in Toyota production lines for a long time (Forbes and Ahmed, 2011), to increase the car reliability and get rid of management wastes (Shingo, 2005). Today, in the construction industry, workplace injury and manslaughter are two of the most noticeable management wastes, TWI strategy is also suitable for human resource managers to boost working and financial efficiency, and decrease working unsafe factors.

As already mentioned before, there are four main harms in workplace injury and manslaughter, business case (economy side), compliance (legislation), moral imperative (ethical side), and psychological contract (negative impacts on working motivation). Every harmful element can cause huge unrepairable damage to organizations, in the following paragraphs, this essay discussed each damage deeply.

3.1 Economical damage

The first one is the business case, which is the economic loss. According to the case study, workplace injury and fatality can fine organizations up to 3.5 million Australian dollars, from 1999 to 2019, the highest finance penalty was 160,000 Australian dollars in 2018. On the other side of the earth, in South Africa, construction industry companies expensed more than 20 million US dollars on work-related injuries and fatalities just in the period of the end of March 2012 (Haupt and Pillay, 2016), these tragedies are harmful to both managers and employees, and most of these expenses are avoidable. To some extent, compensation directly destroys organizational cash flow, forcing companies to need to pay much more operational costs.

3.2 Legislation responsibility

The second damage is compliance, the legislation responsibility. In 2020, workers and unions gathered around Western Australia's Parliament House, fought for the new laws, they tried to push the law to verdict workplace injury and fatality as a criminal offense, in some places in Australia has already successfully published the law, such as Queensland, Victoria and the Australian Capital Territory. It's undeniable that there is the possibility for another place to issue the same law to protect workers in the future, it means that managers and employers even need to go to prison if they make huge mistakes in safety working strategies, and lead to serious workplace manslaughter. Obviously, it brought new challenges to employers, they need to be more careful and pay more attention to working safety, as they are under crucial responsibilities. On the other hand, defining workplace manslaughter as criminal behavior will be a positive thing for employees, tougher penalties for employers means more working security for employees.

3.3 Moral imperative

From a moral imperative perspective, it's employers' obligation to ensure the working safety of their employees, employees are one of the most valuable assets for organizations, they are directly associated with the company's long-term business performance (Truss et al., 1997). Employees who chose the company to work for mean they trust the company, and are willing to make a contribution to their employers, and vice versa, employers should treasure their employee's safety, and view working safety as the most significant part of their work. Behind every employee is their family, according to the statistics of Safe Work Australia in 2021, there were 36 fatalities happened in the construction industry (Safe Work Australia, 2021), which means that there were 36 families lost their intimate family members. For employers, the cause of workplace manslaughter is also a moral condemnation, it may also cause psychological barriers to employers.

3.4 Complete health

Lastly, is the psychological contract, working accidents can lead to serious damage to employees' working motivation. Companies should not just require safety, but also, they need to ensure employees' health. Safety just means the absence of injury, illness, and infirmity. However, a positive working environment also needs to consider the health of their employees, health means a complete physical, mental and social well-being, not just about physical safety (World Health Organization in Kinnersley 1987 in Bratton and Gold, 2007:480). If organizations want to improve their employees' long-term working efficiency, managers must pay attention to workers' mental health, to make sure employees are not overstressed. Working-place manslaughter can cause noticeable damage to employees, and it has universality among employees, it's not just about physical damage to the merely injured worker, but also it causes mental damage to the injured employee and the witnesses on the injury spot, which is the working place. This negative mental illness will cut down employees' working motivation, which leads to poor working performance, then bring long-term operation damages to companies. If employers do not emphasize workplace safety, employees can't fully get into their work, some employees even will choose to resign from their work, at the same time, the brand image will also be harmed.

In conclusion, workplace accidents were highly concerning among the public, unions, and governments. Workplace manslaughter brought four kinds of harm to organizations, and each of them was extremely dangerous, shareholders and human resource managers need to cope with the dangers in the work section meticulously, to ensure employee's safety and full health (Park et al., 2015). TWI is an adaptable strategy for human resource managers and organization owners to reduce workplace dangerous factors, in the next section, this essay provided two kinds of TWI strategies to present training solutions to improve working environment safety, one is job instruction, another one is the strengthening of safety awareness.

4. Managerial implications / Recommendations

TWI strategy is an adaptable way for human resource managers to decrease risks and cut accident costs directly, in the following paragraphs, this essay illustrated two methods to implement TWI theory into practical construction safety management, the first one is job instruction, to provide new employees safety guidance knowledge, the second one is the strengthening of safety awareness, this training is not just about employees, but also employers and managers.

4.1 Job instruction training

From the report of Safe Work Australia, there were 194 work fatalities in 2020, a quite number of them were just new to their work, they didn't familiar with their job content, the data also shows that new workers in construction spots were absent appropriate working behaviors (Lesiba George Mollo and Fidelis Emuze, 2019), and these inappropriate behaviors directly lead to dangerous working behaviors, hugely increase the risks of accidents.

Under this condition, employers need to set safety training for their new construction workers, one of the most helpful and economical ways for organizations to train their new employees is to arrange for their old and experienced workers to accompany their new employees. New employees learn from their experienced colleagues in the same work content. Companies can even set up lunch and learn sections, create more opportunities for new workers to communicate with experienced employees, make them interact with each other, and build strengthening relationships in the workplace. In a construction zone, organizations need to encourage their experienced workers to do working samples before new employees have a try, for instance, old employees to teach new co-workers how to wear safety equipment appropriately, experienced workers make a sample for new workers, make them learn from it, and then let young workers try until they get proficient with wearing construction safety equipment appropriately. This plan could be more stressful for old workers, organizations need to find ways to motivate their experienced employees and make them willing to train their new colleagues, during the training period, companies can raise experienced worker's salaries appropriately, or provide them with better-working fringe, in order to motivate old employees to train actively. In this way, new workers can get into their job more efficiently, and most importantly, they can receive a more comprehensive safety working guarantee, at the same time, decrease workplace injury and manslaughter risks for both employees and employers.

4.2 The strengthen of safety awareness training

Due to the poor safety condition, the construction industry was known as one of the most dangerous occupations all over the world, in Australia, the number of fatalities was the third highest in 2021 (Safe Work Australia). Previous research shows that human error was one of the most essential reasons for construction accidents (Yap and Lee (2019)). The people who involve in the construction industry should deeply notice this situation, not only employees but more importantly, human resource managers and shareholders also need to be aware of this information. Both employers and employees need to enhance their safety awareness.

There are plenty of directions for safety awareness, protective equipment is one of the most significant parts. From human resource managers' perspective, they need to make sure every protective equipment is reliable and useful. At the same time, managers need to build safety awareness by providing comprehensive protective equipment to employees, in the construction industry, common and indispensable safety equipment includes safety helmets, protective gloves, eye protectors, anti-dust respirators, and safety belts (Andrew Ebekozien, 2021), managers have the responsibility to prepare sufficient above equipment to construction workers, and arrange regular inspection and maintenance of these safety protections, ensure the reliability of the construction safety equipment.

From an employee's perspective, some fatal construction accidents are always caused by the absence of safety equipment or employees' incorrectly using. It means that part of construction employees didn't realize the importance of protective equipment, under this situation, safety awareness education training is extremely necessary. Human resource managers are strongly recommended to set up some safety knowledge training for their employees, managers can invite safety knowledge experts to give speeches to construction employees and teach them how to use personal protective equipment correctly. Employers can also call for medical staff to train construction workers how to self-protect or save their co-workers in urgent situations. Some construction site also conducts emergency drill regularly, to reinforce the ability to respond to emergent accidents. These trainings are strongly suggested for human resource managers, combine the TWI theory with practice, it could be noticeably helpful to reduce the dangerous factors in construction sites.

5. Conclusion

People only have one life, and there should be no tolerance for workplace fatality, construction industry is always one of the most dangerous working sites, especially in developing countries.

Workplace manslaughter can harm organizations and their managers from 4 sides, financial loss, legislation penalty, negative effects on morality, and psychological damage. Each of these harms can be catastrophic to companies, there are huge possibilities that the punishment for enterprises causing workplace manslaughter will be stricter in the future, and human resource managers need to treat safety protection more carefully. TWI theory is deeply recommended to managers take in the construction industry, organizational owners and human resource managers are suggested to take job instruction training to their employees, to make sure construction workers can do their jobs in a safer way. Safety awareness is also significant, both employees and employers should strengthen their safety consciousness by setting up relevant training, such as personal safety equipment utilization training, medical treatment training, and emergency drill training. The appropriate utilization of TWI theory in the construction industry safety protection can present benefits to shareholders and workers, in this essay, human resource managers are recommended to combine TWI with their managing plans, to ensure the safety of their employees.

References

- [1] Awwad, R., El Souki, O., & Jabbour, M. (2016). *Construction safety practices and challenges in a Middle Eastern developing country*. *Safety Science*, 83, 1-11. doi:10.1016/j.ssci.2015.10.016
- [2] Chidambaram, P. (2016). *Perspectives on human factors in a shifting operational environment*. *Journal of Loss Prevention in the Process Industries*.
- [3] Ebekoziem, A. (2021). *Construction companies' compliance to personal protective equipment on junior staff in Nigeria: Issues and solutions*. *International Journal of Building Pathology and Adaptation*. doi:10.1108/ijbpa-08-2020-0067
- [4] Forbes, L.H. and Ahmed, S.M. (2011). *Morden Construction: Lean Project Delivery and Integrated Practices*. Taylor and Francis Group.
- [5] Ghodrati, N., Yiu, T. W., Wilkinson, S., & Shahbazpour, M. (2018). *A new approach to predict safety outcomes in the construction industry*. *Safety Science*, 109, 86-94. doi:10.1016/j.ssci.2018.05.016
- [6] Graupp, P. and Wrona, R.J. (2010). *Implementing Training within Industry: Creating and Managing a Skills-Based Culture*. CRC Press.
- [7] Haupt, T. C., & Pillay, K. (2016). *Investigating the true costs of construction accidents*. *Journal of Engineering, Design and Technology*, 14(2), 373-419. doi:10.1108/jedt-07-2014-0041
- [8] Health and Safety Executive. (2009). *Reducing Error and Influencing Behavior*.
- [9] Huntzinger, J. (2016). *The Roots of Lean: Training within Industry: The Origin of Japanese Management and Kaizen and Other Insights*. *Lean Frontiers*.
- [10] Mollo, L. G., Emuze, F., & Smallwood, J. (2019). *Improving occupational health and safety (OHS) in construction using training-within-Industry method*. *Journal of Financial Management of Property and Construction*, 24(3), 655-671. doi:10.1108/jfmpc-12-2018-0072
- [11] Park, C., & Kim, H. (2013). *A framework for construction safety management and visualization system*. *Automation in Construction*, 33, 95-103. doi:10.1016/j.autcon.2012.09.012
- [12] Park, M., Elsafty, N., & Zhu, Z. (2015). *Hardhat-wearing detection for enhancing on-site safety of construction workers*. *Journal of Construction Engineering and Management*, 141(9). doi: 10.1061/(asce)co.1943-7862.0000974
- [13] Safe work Australia. (2021). Retrieved from <https://www.safeworkaustralia.gov.au/>
- [14] Shingo, S. (2005). *A Study of the Toyota Production System from an Industrial Engineering Viewpoint*, in Dillion. CRC Press.
- [15] U.S. Bureau of Labor Statistics. (2014). *Occupational Injuries/Illnesses and Fatal Injuries Profiles*. Department of Labor (2014).
- [16] Yoon, S. J., Lin, H. K., Chen, G., Yi, S., Choi, J., & Rui, Z. (2013). *Effect of occupational health and safety management system on work-related accident rate and differences of occupational health and safety management system awareness between managers in South Korea's construction industry*. *Safety and Health at Work*, 4(4), 201-209. doi:10.1016/j.shaw.2013.10.002.