

Capability Building and Development of Organizational HSE Training Platform

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ABSTRACT: Online Training platform plays vital role within organization QHSE system. Safety is considered as a priority in most of the industries across the world, considering it a built-in responsibility than add-on. It provides workers to learn and implement new things in workplace. If there is less stress, lesser accidents, and lesser injuries in workplace, the organization morale gets increased automatically, thus enhance the safety culture. Profitability, benefits, and intensity will increment as creation costs per unit, turnover, and laborers remuneration rates lower. This paper describes about the assessment of capability of employees in VA TECH WABAG LTD through online assessment. The capability level is assessed by online survey for the group of 50 employees such as supervisors and engineers working at various project sites. The gap is identified initially based on the checklist consists of several checkpoints and based on the gap survey done at various project sites, online platform is prepared, which consists of learning modules for all the activities, which includes graphs, current scenarios, videos. These training modules can be easily accessed by the employees through WABAG portal, an online test is conducted after the completion of every topic and if the employee pass with above qualified mark, a certificate is generated and automatically sent to the employee mail highlighting the successful completion of particular topic and the employee is considered competent in that particular topic. With the help of this online HSE training platform and the capability building test, can be reduced “and” it also helps supervisors, engineers and managers to feel confident and competent in implementing HSE standards and best practices of work and to promote the safety culture.

KEYWORDS: HSE training, platform, capability, online, safety.

I. INTRODUCTION

HSE training plays major role eliminating the hazards and to improve safety culture. “In any case, executing a potential HSE program is a test for all the organizations. They tend to use more contractors and temporary employees than other industries. These workers are weak links in many organizations’ safety programs. To keep up with constantly shifting work environments, supervisors, managers and other higher officials must beat new challenges and roadblocks when it comes to safety training. So, the best thing is to adopt new digital models and delivery methods to track and train workers to create a safety culture within an organization. Doing so cuts insurance premiums, enhances company’s reputation, increases productivity, and reduces absences. It also provides legal protection against damages. The main advantage of this online training is any employee in an organization can access and get the training done anytime.

There are several benefits present in the online HSE training and will continue to increase based on time. Some of the key benefits of online safety training provides; Boosts accountability, responsibility, and Standardizes safety Improves safety training effectiveness lowers training costs Boosts worker Enhances employee morale, Compresses learning time

II. BACKGROUND STUDY

Before planning for the online HSE training, a detailed survey is made at 4 sites and apart from these off site survey was being carried out at several sites. As a result of these survey, it was found that the minor and major incidents happened at different sites were majorly due to lack of knowledge and ignorance of the workers. If the workers are properly trained at site, the rate of incidents might fall from higher level to lower level. So, initially to carry out the work in a safe manner supervisors and engineers at site should be highly competent to carry out the particular task. So it was found that if all the supervisors and engineers at site are found to be competent in some areas not all the areas where they work. So as a part of

this review survey a checklist is prepared based on that and based on the standard operating procedures all the site activities were cross checked. A pen paper based examination was conducted among the total of 50 employees overall at all the sites, to ensure their knowledge at each activity. Based on the survey conducted, the training was planned, the training was planned in a way that any employee who is doing other job than his normal job has to be competent before carrying out the job, so all the engineers should be competent in the activities carried out at site and they should be aware of all the regulations and standards. The training was designed in such a way so as to reduce the manpower, cost and other things invested on the training. Some of the observations found at site during visit are no proper disposal of chemicals after usage, when enquired with the area supervisor he was unaware of the disposal of the chemical sodium hypochlorite being used and he was certified as competent but he was not aware outside the operations. First aid cases in overall sites were around 128, there were 12 reportable accidents, 18 medical treatment cases and 6 recordable accidents were found in around 65 sites.

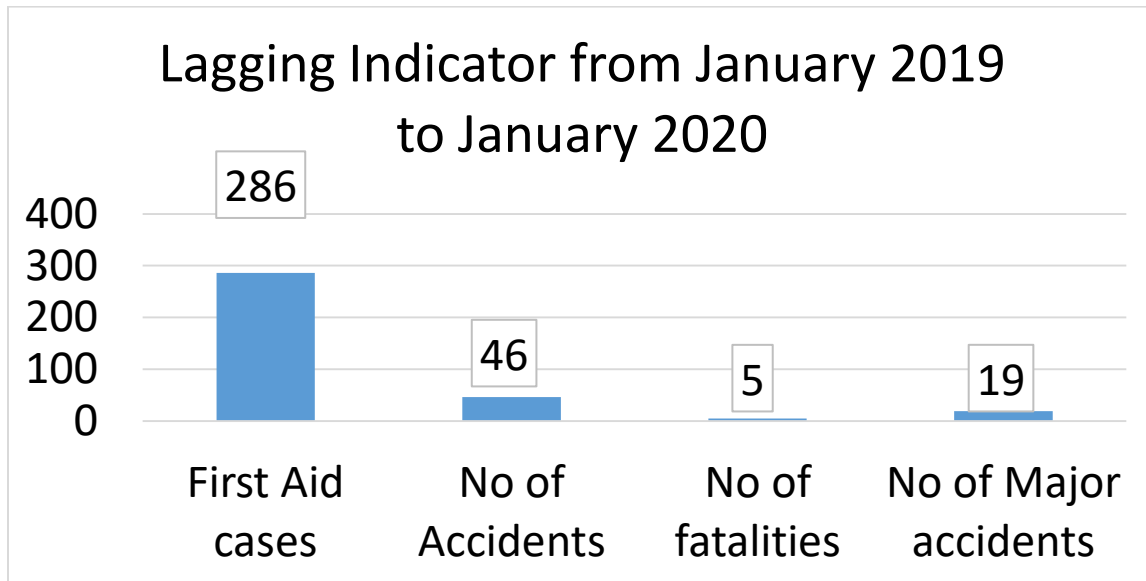


Figure 1 Lagging indicator

Hence sight survey is conducted to define the safety level at different sites through the estimation of understanding of employees. Apart from the above survey, checklists were prepared on several different topics to evaluate the understanding of the employees in the organization. The pen paper test which was conducted at site were taken into account for evaluation and apart from that through checklist all the site activities were examined whether it has been carried out in reference with standard operating procedures or not. The sample checklist made for the survey is attached here for the reference.

III. LITERATURE REVIEW

“Harvey et al., 2009; McLellan et al., 2001; Tsutsumi, 2011; Petrie et al., 2017””, In affirmation of the huge development supervisor “” thriving “the employee whom they” oversee, distinctive “job areas are” executing express making game plans for pioneers to help them with bettering recognize and reinforce the mental success “needs of their staff.” This organizing “can be” gone on close or online instructional courses. “Appraisal of such undertakings have found positive results for every connection when meandered from a benchmark gathering, at any rate to date, eye to eye and online boss mental prosperity getting ready have not been isolated and one another.” This assessment starts inspecting a close to program content, each using a substitute procedure for substance transport. The two sorts of getting ready intended to change boss' assurance to all the more promptly reinforce the enthusiastic prosperity requirement of employee they direct. Strategies: Utilizing value got late coordinated starters, difference in director sureness against check “post-intercession and continual monitoring were analyzed for every method. A vague technique for evaluating conviction was used in every examination. A progressively unmistakable switch was seen with very close getting ready than for on the web, though the two procedures had proceeded with progress over time. Assessments focused on directors who totally completed either sort of getting ready

demonstrated generally equivalent to realization for eye to eye and web based planning. Nevertheless, settle for what is most convenient option ordinary in online getting ready decrease the general effect of this method for transport. “Next study was coordinated with improvement enlist association to identify the critical sufficiency of a web based wellbeing planning program planned to improve executives.” “In like manner, this web based getting ready program furthermore included approaches critical in making a healthy work area.” “This online program included a movement of timely prototypes intended to be done at the individual over a time period.” “Prototypes contained modules for content, chronicles etc. “Administrators those who improve and select affiliation were those in administrative occupations answerable for parts of operators. The modules were made on the crucial and main activities which is carried out at the project sites, these activities were listed after the site inspection and modules for each activity is developed in the form of presentations, videos and graphs etc. Also these module or prototype which is prepared is for easy understanding of the supervisors, managers and other personnel and to carry their work effectively at site with no incidents. .” In any case, executing a potential HSE program is a test for all the organizations. They tend to use more contractors and temporary employees than other industries. These workers are weak links in many organizations’ safety programs. It mainly focuses to provide and gain stable knowledge to all the supervisors, engineers, so that they could be able to teach and train the team working under them, So as to attain a better safety culture.

IV. METHODOLOGY

Here in this project, PDCA cycle is used as a key for developing and implementing the online training module and using this cycle the implemented prototype is tested initially.

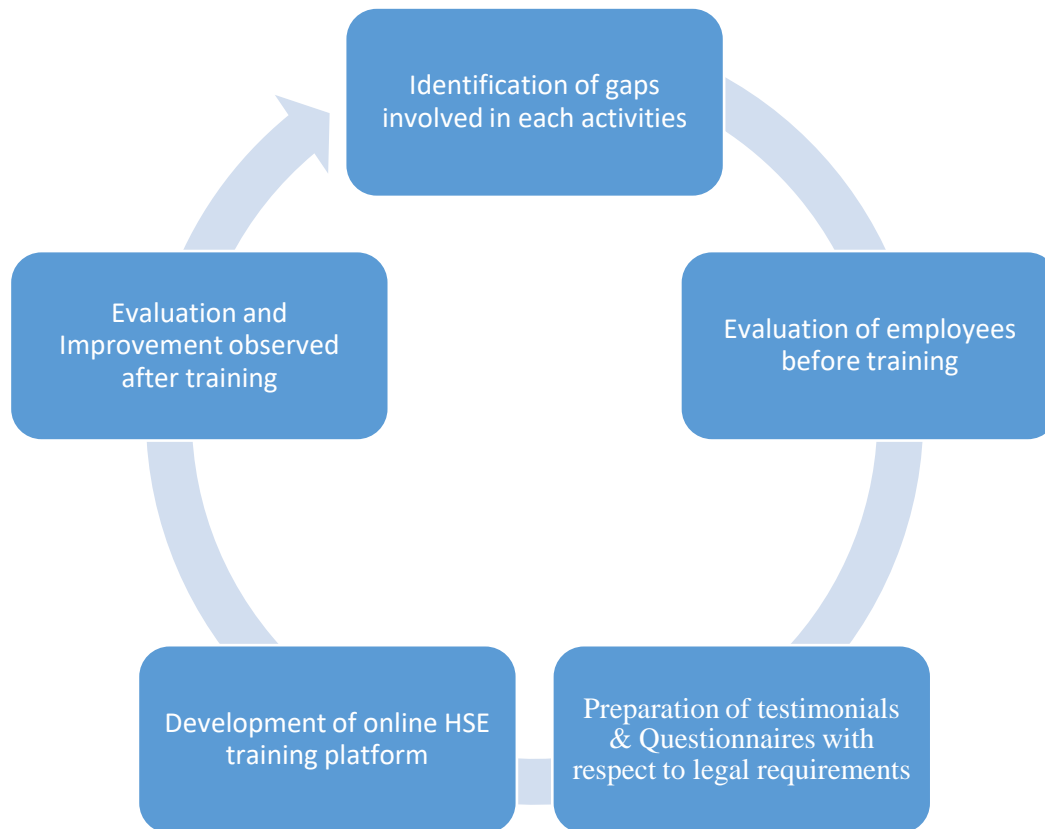
Initial phase of the cycle which involves arrangements and building of a prototype or model related to the project and implement it. In this project site inspection is made at the starting phase of the project to evaluate the lagging indicators which could lead to incidents, so to list out the problem, inspection were carried out based on the checklist and also “5Y” analysis is carried out to identify the problem. So based on the above inspection, findings are listed out for changes which is to be included in the training module. A sample checklist which was used to find problems in the planning stage is added below.

Based on the findings made in the planning phase, the set of training modules were prepared initially to add more valuable information to it based on the findings. The modules were made on the crucial and main activities which is carried out at the project sites, these activities were listed after the site inspection and modules for each activity is developed in the form of presentations, videos and graphs etc. Also these module or prototype which is prepared is for easy understanding of the supervisors, managers and other personnel and to carry their work effectively at site with no incidents. It mainly focuses to provide and gain stable knowledge to all the supervisors, engineers, so that they could be able to teach and train the team working under them, So as to attain a better safety culture. The training modules were made on the several topics and the flow of process is attached,

After the development of trailing module, a questionnaire is made on the each activity to evaluate the individual which is further carried out in the check stage. In do stage testing of the module with a little scope venture, “ideally in a controlled domain is done, so the outcomes are assessed without interfering with the remainder of activity. At that point testing has done in the do organize.

Once the trial is completed, the test is done by uploading the testimonials and training materials. After the uploading of materials at portal. A test is made initially to review the effectiveness of the online HSE training program. Questions are raised at this stage to find the effectiveness of the module such as, did the plan actually work? Once after the creation of the online modules it is tested, each and every employee can log in through the portal to attend the training, once the employee has started the particular training on the topic of scaffolding for example, he can login any time for the training irrespective of time, which offline training doesn’t satisfy.

Once after the completion of the online HSE training, the test pop up is shown on the portal related to the activity studied. If the employee has logged in to scaffolding activity, the training module on the particular activity is shown and once the study of the whole training is completed



So, once the training is completed, the testimonial related to scaffolding safety displays on the screen and the employee is mandatory to take the test and depending on the test score, the employee is segregated and apart from this study, the employee is also tested based on the experience and level of knowledge along with the test score, once the person passes, automatically the certificate is generated and sent to his mail id displaying the activity and certifying competent. “. In this evaluation, if the employee fails to clear the test related to the activity studied, the employee has to undergo the process again for the completion of the test.

In the process, some of the risks are identified such as; if any employee who is working in a rural site and is difficult to assess this training and there are not many risks were found when tested at several different sites. Employee found this online training as easy accessible, time consuming and so on. In this act stage, Several hazard identification and risk assessment modules were studied in the background phase of the study, which is to be incorporated in the training and the findings from all the inspections and tests where helpful so as to make the module in an effective manner by providing maximum inputs, through the training to all the employee working in the organization. Around 68 risk assessment were carried out at various sites for several activities and it is recorded in the register to carry out the training module in an effective manner.

Over 9 week period, the background study and analysis were carried out before implementing this online HSE training, the training were developed. All the above mentioned activities are taken into consideration and modules related to the training were prepared on the above mentioned weekly basis. Every week target is set and work was carried out depending upon the activities to achieve the desired target. Around 440 employees were participated in the training and their capability level on the each activity increased in a continued manner and all the employee feedback were positive related to this online digital training, so that they can get trained anytime and ease of usage were comfortable means any individual can access the training from anywhere through their smartphones, tablets etc. and prime advantage was they were given a monthly target of completing 7 activities and any individual can complete any activity they like and they get to access it multiple times in case of doubt, so online training helps an individual lot more to build their capability than offline training.

V. CONCLUSION

Although the HSE online training plays an important role and provides several advantages in the industry, the background data collected through checklists and pen paper based examinations were not sufficient for the whole development of the training platform. At several sites, the accidents, first aid cases, fatalities as well as near misses were reported due to lack of training for the employees. Most of the employees were bound to complete the work within the given deadline, but in all of that around 75% employees were trained and the remaining employees working at the project sites were not well trained and they work on the temporary basis. So when organization planned to train this 25% of workers at the project sites, it was difficult. So finally this digital safety training which can allow an employee to access from every corner of the country helped to solve the problem. So the detailed background study was done for the 2 weeks at some of the sites to identify the needs of the training apart from developing the general module. So based on the observation and studies done initially, many of them at project sites were not aware about legal requirements as well as regulations and some of the supervisors who train the labors working under them were found lagging in some areas. By taking all this into consideration the training module was developed and tested and it created a huge impact and it reached well among the employees at the project sites. Although this is the initial stage after the development of this online training platform, there were some lagging found, means the employee were evaluated only once, so to evaluate the employees in a continuous time period, the frequency of test with different patterns along with this training will be developed and added to the current training module. In addition to this digital training, HSE passport were prepared to train the employees and to achieve the proactive safety culture in the organization. Likewise, there is extraordinary potential for this sort of preparing to improve the help given to workers to upgrading their ability needs later on.

REFERENCES

1. Harvey SB, Henderson M, Lelliott P, Hotopf M. Mental health and employment: much work still to be done. *Br J Psychiatry* 2009 Mar; 194(3):201-203. [doi: 10.1192/bjp.bp.108.055111] [Medline: 19252144]
2. McLellan RK, Pransky G, Shaw WS. Disability management training for supervisors: a pilot intervention program. *J Occup Rehabil* 2001 Mar; 11(1):33-41. [Medline: 11706775]
3. Tsutsumi A. Development of an evidence-based guideline for supervisor training in promoting mental health: literature review. *J Occup Health* 2011; 53(1):1-9 [FREE Full text] [Medline: 21079372]
4. Petrie K, Joyce S, Tan L, Henderson M, Johnson A, Nguyen H, et al. A framework to create more mentally healthy workplaces: A viewpoint. *Aust N Z J Psychiatry* 2018 Jan; 52(1):15-23. [doi: 10.1177/0004867417726174] [Medline:28835112]
5. Harvey SB, Modini M, Joyce S, Milligan-Saville JS, Tan L, Mykletun A, et al. Can work make you mentally ill? A systematic meta-review of work-related risk factors for common mental health problems. *Occup Environ Med* 2017 Mar; 74(4):301-310. [doi: 10.1136/oemed-2016-104015] [Medline: 28108676]
6. Harvey S, Henderson M. Occupational psychiatry. *Psychiatry* 2009 May; 8(5):174-178 [FREE Full text] [doi: 10.1016/j.mppsy.2009.03.011]
7. Henderson M, Harvey SB, Overland S, Mykletun A, Hotopf M. Work and common psychiatric disorders. *J R Soc Med* 2011 May; 104(5):198-207 [FREE Full text] [doi: 10.1258/jrsm.2011.100231] [Medline: 21558098]
8. Van Zoonen K, Buntrock C, Ebert DD, Smit F, Reynolds CF, Beekman ATF, et al. preventing the onset of major depressive disorder: a meta-analytic review of psychological interventions. *Int J Epidemiol* 2014 Apr; 43(2):318-329 [FREE Full text] [doi: 10.1093/ije/dyt175] [Medline: 24760873]
9. Harvey SB, Deady M, Wang M, Mykletun A, Butterworth P, Christensen H, et al. Is the prevalence of mental illness increasing in Australia? Evidence from national health surveys and administrative data, 2001-2014. *Med J Aust* 2017 Jun 19; 206(11):490-493. [Medline: 28918719]
10. Knudsen AK, Øverland S, Aakvaag HF, Harvey SB, Hotopf M, Mykletun A. Common mental disorders and disability pension award: seven year follow-up of the HUSK study. *J Psychosom Res* 2010 Jul; 69(1):59-67. [doi: 10.1016/j.jpsychores.2010.03.007] [Medline: 20630264]
11. Cocker F, Sanderson K, LaMontagne AD. Estimating the Economic Benefits of Eliminating Job Strain as a Risk Factor for Depression. *J Occup Environ Med* 2017 Jan; 59(1):12-17. [doi: 10.1097/JOM.0000000000000908] [Medline: 28045792]
12. LaMontagne AD, Martin A, Page KM, Reavley NJ, Noblet AJ, and Milner AJ, et al. Workplace mental health: developing an integrated intervention approach. *BMC Psychiatry* 2014 May 09; 14:131 [FREE Full text] [doi: 10.1186/1471-244X-14-131] [Medline: 24884425]



13. The Building & other Construction Workers (Regulation, Employment and Conditions of Service) Act 1996.
14. Gas Cylinder Rules, 1981 (GCR)
15. Static & Mobile Pressure Vessels (Unfired) Rules, 1981 (SMPVR)
16. Electricity Act, 2003 (EA)
17. Indian Electricity Rules, 1956 (ER)
18. Motor Vehicles Act, 1988 (MVA)
19. Central Motor Vehicles Rules, 1989 (CMVR)
20. The Environment (Protection) Act, 1986 (Amended 1991) 29
21. The Environment Protection Rules, 1986 (Amended 2006)
22. The Hazardous Wastes (Management and Handling) Rules, 1989 (Amended 2003)
23. The Water (Prevention and Control of Pollution) Act, 1974 & Rules, 1975
24. The Air (Prevention and Control of Pollution) Act, 1981 & Rules, 1982
25. The Noise (Regulation and Control) Rules, 2000
26. Manufacture Storage and Import of Hazardous Chemicals Rules
27. , 1989 amended 2000
28. Chemical Accidents (Emergency Planning, preparedness and Response) Rules, 1996
29. Batteries (Management and Handling) Rules, 2001