Safety and Health Management in Construction Practices (Using Certificate Programmes)

Mood Naresh [1] V Sandeep[2] N Pavani[3]
Assistant Professor
Department of civil engineering, Princeton institute of engineering and technology for women, Ghatkesar, Hyderabad.Telangana

Abstract - Life and heath are most precious. Safety denotes continuing and healthful living without injury. Safety is freedom from harm or the danger of harm. The word safety also refers to the precautions people take to prevent accidents, harm, danger, loss and air/water/environment pollution. Safety also deals with improvements in working conditions for better health. Safety is important to everyone and at every stage of activities and at all times safety first. Safety is necessary everywhere and at all times, in homes, on roads, in offices, public places, while traveling, in working in industries. Industry has more hazardous situations and activities than home or an office. Many persons work as team in an industry and safety is of interest to every individual, group of individuals and the total organization. Every individual in the society and an industrial organization has obligation to organize and establish safety disciplines. Safety management is an essential and important part of industrial management. Well-trained workers are required for building and main-training workforce capacity. Part of the training is accomplished through certificate programmes, in which students complete a series of courses that encompass a body of knowledge. Previous studies have validated the effectiveness of certificate programmes for construction, emergency preparedness, health care and transportation management. This study outlined the benefits and challenges graduates of an occupational safety and health certificate program encountered while implementing changes at their worksite and attempted to make career enhancements after completing a program offered through an OSHA Training Institute Education Center. A 36-question online survey was completed by certificate program graduates who finished the program from 2017 to 2018(6 months to 5 month, post-completion). As a result of completing the program, 93.5% reported that they were better prepared to improve safety and health at their worksite and 81.6% implemented changes. Challenges they encountered included the cost of completing the program, management buy-in for implementing change and limited staff resources.

Keywords - certificate programs, workforce development, safety and healthy training programs.

I.INTRODUCTION

Certificate programs provide opportunities for learners to develop their personal and professional goals. Participants are awarded the certificate after completing a predetermined number of classes that encompass a body of knowledge.

The construction industry plays an important and strategic role in supporting the development and the growth of industry in a nation. LANCO Developers pvt.ltd, as a developing construction company, has concentrated in improving the development of the company by having an increasing number of mega projects, some theorized as national projects. These do not include the increasing number of local projects in Bangalore, since every province has control of the development within its own region. Despite the fact that construction industries are in line with the intensity of the development, many aspects within the construction itself are neglected.

Certificate programmes provide opportunities for learners to develop their personal and professional goals. Participants are awarded the certificate after completing a predetermined number of classes that encompass a body of knowledge. They enhance occupational skills increasing their value in the job market. Learning methodologies employed by certificate programmes include classroom learning, online courses and hands-on training.

II.ELEMENTS OF SAFETY HEALTH PRACTICES

The international standard on Safety, Health accident occurrence and unsafe practices from various construction companies all over the world. All the information gathered there in will be used to identify Safety, Health and Environment practices in the construction applied all over the world which in turn is the basic idea of the study.

Table.1 Number of construction accidents in India

YEAR	Number of constructions	Number of Accidents
2009	15425	1788
2010	32567	1974
2012	36778	2496
2013	39986	3865
2014	29424	3573
2015	30134	2846
2016	34225	3349

SOURCE: Worker social insurance India.

III.Result Demographics

Table.2 (PARTICIPANT DEMOGRAPHICS)

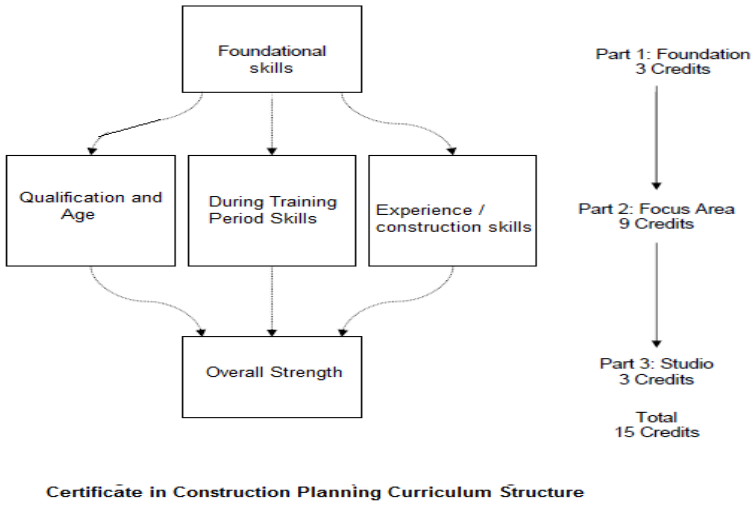
PARTICIPANT DEMOGRAPHICS		
		PERCENTAGE
A) Gender of certificate program graduates (n = 17)	MALE	82.50%
	FEMALE	17.50%
B) Age of certificate program graduates (n = 17)	18-30	41.17%
	31-40	29.41
	41-50	17.64
	51-60	5.88%
	61 and Older	5.88
C) Educational level of certificate program graduates(n=17)	High School	41.17%
	Associates	35.29
	Bachelor's	23.52
	Master's	5.88%
	Doctoral	0
D) Year's experience in occupational safety and health of certificate program graduates (n = 17)	Less than 5 years	35.29
	5-10 years	41.17
	11-15 years	11.76
	16-20 years	5.88
	21-25 years	5.88
	26-30 years	0
	More than 30 years	0

Table.2 contains the demographics of survey respondents. These include gender, age, educational level, years' experience in occupational safety and employment location. The highest level education attained is equally distributed across high school graduate, associate degree, bachelor's degree and master's degree. Only 5.3% of respondents held a degree in safety and four of them had a construction health and safety technician (CHST) certification. None had CIH, CSP, ASP or OHST certifications. Others had specialized certifications including certified occupational hearing conservationists (two), paramedic/EMT (two), certified utility safety administrator (two) and professional engineer (one). When surveyed about their future educational goals, 60.9% reported that they planned to pursue other certifications and 46.2% of those who wanted to pursue certifications were interested in the CSP designation that safety was their full-time position. Forty-three respondents completed the construction certificate and 5 completed the general industry certificate. Ten participants completed both programs, and are included in the total reported for each program.

IV.Certificate in Construction Planning Curriculum Structure

The Certificate in Construction Planning involves a 15-credit sequence comprised of one required foundational course (3 credits), three focus-area courses (9 credits), and a capstone course (3 credits) providing a comprehensive overview and application of the skills and techniques learned during the completion of the certificate program. Figure 1 depicts the overall structure of the 15-credit certificate program.

Figure.3 Certificate in Construction Planning Curriculum Structure.



Certificate in Construction Planning Curriculum Structure

The program is comprised of the following components:

1. **Foundations of Construction Practice (3 credit hours).** Students pursuing the certificate begin their study by taking plan6: Construction in City Planning, which provides a comprehensive overview of the role of construction in society.
Required (3 credits):
• PLAN 612: Construction in City Planning
2. **Focus Area (9 credit hours).** The second step in the completion of the certificate is the completion of 9 credits in one of three specific areas of professional focus. Each of the three focus areas is designed to meet critical needs within the construction profession, and is tailored toward securing student placement in appropriate construction-related
agencies and organizations:

V.Survey Result

at (Lanco Infratech Limited,Lanco Hills Apartments, Manikonda, Hyderabad) Surveys were distributed to certificate program participants who graduated between december 20, 2015, and octomber 7, 2016. Of those, eight were not deliverable because the e-mail address on file was not valid, one opted out of the survey, and two did not complete the survey leaving a total of 84 as the valid number of participants. A total of 28 individuals completed the survey for a response rate of 72.6%. Of these respondents, 25 reported that safety was a part of their overall job responsibilities and 36 reported that safety was their full-time position. Forty-three respondents completed the construction certificate and 28 completed the general industry certificate. Ten participants completed both programs, and are included in the total reported for each program.

Table.4 Motivations to complete a certificate program (n = 17):

Response option	Percentage
I wanted to increase my knowledge base	81.7
I wanted to increase my skills	66.7
My supervisor recommended I complete the program	15.0
I wanted to increase the potential to advance my career	63.3
I want to prepare for a certification (e.g., CSP, CIH)	35.0
I wanted/needed to learn about specific issue(s) in my workplace	33.3
Other	10

The majority of the respondents reported that they completed the certificate program to increase their knowledge base (81.7%) or skills (66.7%); other responses included career advancement and preparation for a certification exam. Table presents student motivations for completing the program.

The certificate programs are designed to meet the training needs of the workforce. This study showed that this objective was met, as 91.7% of the participants reported that they strongly agreed or agreed that the courses within the certificate programs are appropriate for the work they conduct. When asked about deleting any courses from the curriculum, 94.9% of the respondents replied “no”; additionally, 86.3 % wanted to add courses to the respective construction or general industry certificate program. of the 17 suggestions for additional courses, 11 wanted more construction-focused courses in scaffolding, heavy machinery, flagging, rigging and fall protection. Suggestions for new courses to the general industry certificate program included training on the global harmonization system (GHS), bio safety, walking and working surfaces, and forklift safety. Other suggestions included incident command and maritime safety. Only three respondents suggested that courses be deleted from the program. Of these, one suggested that the 3-day fall protection course was too long, another did not see the significance of mold training being part of a construction certificate program, and another expressed concerns about the disaster site worker course being cancelled several times by OPHP and suggested that it was an impediment for students completing the program.

Goals of the certificate programs are to increase participants’ knowledge and skills and to promote changes at their work-places that will help create a safer work environment. Almost 79% of the participants indicated they intended to make changes to company work practices based on the knowledge and/or skills learned in the certificate program, and they provided 45 examples of intended changes. These included 14 graduates who expected to provide new training programs (administrative controls) including ladder safety, incident investigation and other safe-work practices training (unspecified). Other proposed work site improvements included changes to the safety culture, implementing process improvements and a general increase in awareness and knowledge of safety issues (administrative controls). When asked if they implemented changes, 81.6% indicated they had made changes. These changes were summarized as changes to PPE policies (36.2%), changes to administrative controls (51.7%) and changes to engineering controls (44.8%). One participant reported that his site expected to obtain the OSHA Voluntary Protection Programs (VPP) Star designation as a result of applying the training.

VI.Overall Impression of the Program

Participants were asked an open-ended question, “Please provide any comments about the certificate program,” to solicit their overall impression of the program. A total of 17 participants responded, with 15 responses being testimonials to the overall satisfaction those graduates had with the program’s administration and instruction, and the knowledge they received through the training. One participant stated that the program “rounded out” his/her knowledge and another stated that the program “opened up” new resources. The other two participants suggested that there should be some form of national recognition for the certificate programs and this would enhance their marketability.

Table.5 Personal enrichment due to completion of the certificate program:

RESPONSE	SA	A	N	D	SD
I am better prepared to discuss safety and health issues with my supervisor	12	4	1	0	0
I am better prepared to improve safety and health issues at my work site	09	5	2	0	1
I am able to make better safety and health decisions	13	3	1	0	0
I am able to correct a safety or health issue that may have caused an injury or illness	13	2	1	0	1
I am able to change a workplace safety and health policy	09	4	3	0	0
Increased my skills regarding an occupational safety and health issue	13	3	1	0	0
Provided useful information that is applicable to my job	11	4	2	0	0
Helped me do my job better	10	5	2	0	0
Reinforced my knowledge and skills already in place	14	2	1	0	0

- SA = Strongly Agree A = Agree N =Neutral D = Disagree SD = Strongly Disagree

VII. DISCUSSION

Certificate programs are an effective way to develop occupational safety and hea.lth capacity in the workforce. Courses enhance student knowledge base and help them develop strategies for implementing safety and health at their work sites. Students increased their familiarity with OSHA standards and case studies focused on work site incidents and injuries. This information is often conveyed through the training programs the graduates facilitated at their work sites. Such peer-to-peer training encouraged them to think about their company's safety culture and motivated them to strive for improvement. Effectively communicating information to ma|1agement improves buy-in for support of safety programs.

VIII.CONCLUSIONS

- It concluded that by conducting this certificate program study enhanced students and workers overall awareness about health safety necessity in constructions site or industry.
- It is observed that 81.7% workers and site employees were willing to increase knowledge at the final motivations to complete a certificate program.
- 75.33% of workers and site employees were willing wanted to add courses to the respective or general industry certificate program.
- workers and site employees were willing to I am better prepared to discuss safety and health issues with my supervisor given by 14 persons strongly agree out of 17 persons.
- workers and site employees were willing I am able to correct a safety or health issue that may have caused an injury or illness given by 13 persons strongly agree out of 17 persons.
- It provides more efficiency towards output of the work & confidence to workers (or) students.
- This study evaluated the overall benefits of a safety and health certificate program. It would be beneficial to evaluate how the individual subject-matter courses helped the students in implementing safety related to those hazards at their work sites.
- The cost of completing the program was cited as a barrier by several students. OPHP will seek support of corporate or foundation sponsors to help potential program candidates defray some costs associated with the program.
- As social networking through Facebook and LinkedIn become more popular, it would be beneficial to establish a group for program alumni to share their collective experience.

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