Abstract

Study for the development of hierarchical educational program & pilot standard textbook

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1. Research Objective

In order to strengthen health and safety competency covering all the hierarchies from directors and supervisors to health & safety managers, building a hierarchical educational program is a must. However, the current related programs lack in practicality which limit the capabilities of each hierarchy to foster industry specialists. Also, the current teaching materials are centered on the type of business rather than each divided field such as safety engineering, human engineering, industrial hygiene and occupational health. Therefore providing customized standard textbook according to each field is very important to raise competency for quality education. To solve these issues, we need to make clear of the role of the health and safety management hierarchies first of all and improve their competency as well as providing systematic, efficient and customized training.

2. Research Contents

In this research, we aim to select each health and safety management hierarchy and carry out a study with reference to Industrial Safety and Health Acts, documentary survey, public survey and interview both home and abroad to introduce right health and safety educational programs. We also would like to

stereotype the role of each health and safety management hierarchy to develop a hierarchical educational program and to suggest a development guideline for standard textbook that can improve job performance in each field.

3. Research Results:

We carried out the survey from September 14th to 30th 2015, obtained a data of 200 people and chose 177 valid cases to give a thorough analysis. The respondents showed the highest level of preference to 'case-oriented lecture method' which followed by 'practice/experiment/experience-based' and 'field tour/training-based' in order. The lowest level of preference went to distance learning (or online method). This means that the distance learning makes it difficult to effectively manage students and the teaching materials used are not as productive as on-site education. Regarding the 'experience-based', each place of business gave various answers. With regard to questions on improvement and intervention needed for health and safety education articles, the article 3)Investigation of the Cause and Prevention Methods of Industrial Accidents, the article 1)Establishment of Safety Management, and the article 2)Industrial Health and Safety Education, ranked respectively in arow.

With the support of various educational institutions and by online and posts, second survey carried out on preference for completion of the curriculums run in the domestic educational institutions, and educational programs run overseas, in the period between Monday 26 and Friday 30 October 2015. **The results in respect to domestic curriculums are as follows**. In the Electrical Safety Category, 'Electrical Safety' is most important educational course. 'Written Report of Process Safety & Assessment' is most important in the Process Safety Management Category.

In Ergonomics(Human Factors) field, 'Prevention of Muscular Skeletal Disease & Harmful Factor Inspection' is important educational course, 'HAZOP (Hazard and operability)' in the Hazard Analysis Technique, 'Industrial Accident Examination & First Aid' in the Accident Investigation, 'Fostering Safety Cultural Leaders' in the Safety Culture.

The results in respect to overseas curriculums are as follows. In the Health & Safety Law and Insurance Category, 'Health & Safety Law' appeared as the most important subject followed by 'Skin Diseases & Management' in the Industrial Health, 'Basics of Human Engineering' in the Human Engineering, 'Human Factor for Accident Investigation' in the Disaster Investigation, 'Welfare & Health' and 'Understanding & Management of Job-to-Job' in the Welfare and Safety, and 'Health & Safety Organizations and Prevention Management' and 'Traffic Education' in the General Health & Safety. In terms of Cognitive Science Category, 'Cognitive & Caution' turned to be the most important subject followed by 'Factories & Fire Accidents' in the Fire & Radiation Safety, 'Work Related Safety' in the Work Safety, 'Hazardous Zone Workers' in the Human Resource, 'Behavioral Safety Management' in the Workplace Safety, 'Workplace Accident Phenomenon' in the Workplace Analysis and 'First Aid & Rescue Training and Procedure' in the Prevention and Management Category.

We carried out a satisfaction research (third research) on standard textbooks used in domestic educational institutions from 28 October to 4 November 2015 based on online and commissioned survey with the cooperation of educational institutions. The age groups of respondents are in order of 40s (40%) and below 30s (36%), 50s (24%). The rank of respondents is that the first is health & safety managers (53%), the second is workers(27%), and the third is the supervisor of health and safety(14%).

Respondents showed higher negative opinions in 1) appropriateness of textbooks 2) structure 3) approaches 4) range of subjects 5) having a class with experimental textbooks 6) actual adaptation of theory in the field after class 7) self-application capability in the field 8) satisfaction of providing case study.

Respondents showed higher positive opinions in 1) contents 2) providing practical application cases 3) quality 4) improving level of competency 5) satisfaction level of narrative forms 6) level of class quality evaluation 7) satisfactory level of educational results 8) satisfactory level with lecturers.

Respondents showed the lowest satisfaction by saying 1) practicable textbooks make teaching experience difficult 2) self-learning and application still need improvement 3) theories are not very practical. They are not satisfied with the level of providing case studies but are satisfied with the rest 4 satisfactory questions.

4. Discussion and Opinion for Next

We understood realistic issues through the interview we carried out with the officials from various educational institutions. Most of them shared the same opinions on the problems and improvements that are needed. Below is the list of improvement they mentioned:

1) Upgraded standard of validity for sustain ability of health and safety educational institutions.
2) Implementation of qualitative evaluation (lecturers or educational contents) and management system.
3) Functional separation of KOSHA (Korea Occupational Safety & Health Agency) and educational institutions for effective administration.
4) Promotion of qualitative health & safety education through fostering industry specialists.

5. Utilization Plan/ Expected Contribution

We learned that we can actualize more effective health & safety education by promoting each related hierarchy's competency and by introducing more appropriate educational programs. We believe that our research results can be used and applied for the follow-up researches in the future.

6. Keyword

Hierarchical education program, competency, standard textbook, guideline