Journal of Asian Vocational Education and Training
Vol. 7, pp92-97, 2014

ISSN 2005-0550

Survey on Basic Vocational Competencies in Korean Construction Industry

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ABSTRACT

The purpose of this study was to investigate basic vocational competencies that construction industry demands by analyzing on-site professionals' opinions in Korea. The survey questionnaire administered to the on-site construction professionals has 12 areas which are based on the previous research on the basic vocational skills needed for construction technicians. However, only eight core basic vocational competencies that have been selected which include self-management, job understanding, human relations, technology application, problem-solving, communication, organization, and foreign language abilities.

Keywords: Core basic vocational competency, skills assessment, specialized vocational high school, construction industry, Korea

INTRODUCTION

Lee and Kim (2012) arranged the essential skills that can be used for the evaluation standard instead of qualification on employment and labor market. They presented K-CESA (Korea Collegiate Essential Skills Assessment) which is consisted of six different essential skills: self-management, interpersonal, global, communication, ICT, technology and comprehensive thinking skills. Han *et al.* (2011) presented five areas as key competencies that match the change of industry and enterprise environment: problem-solving, calculation, technology application, human relations and communication skills. This study was designed to determine basic vocational competencies needed for SVHS (Specialized Vocational High School) graduates in construction technology from the perspective of the on-site construction professionals.

METHODOLOGY

The questionnaires were distributed to 20 professionals of construction industry and one-on-one interview with professionals was performed. Table 1 indicated the demographic information of the respondents. To determine the key competencies needed by construction industry, this study used a 5-point Likert Scale (1=absolutely not important, 2=not important, 3=average, 4=important, 5=very important) and asked the on-site construction professionals to rate the importance of 12 areas of basic

competencies for the construction industry. Figure 1 showed the 12 basic skills for construction industry derived from the previous research.

Table 1: Demographic information of the on-site professionals involved in this study

Variables		Percentage (n)
Gender	Male	65.0% (n=13)
	Female	35.0% (n=7)
Field	Architecture	40.0% (n=8)
	Civil Engineering	30.0% (n=6)
	Industrial equipment	25.0% (n=5)
	Landscape	5.0% (n=1)
Career length	under 5 years	15.0% (n=3)
	from 5 to 10 years	55.0% (n=11)
	from 10 to 15 years	20.0% (n=4)
	longer than 15 years	10.0% (n=2)
Number of employees	from 50 persons to 300 persons	100.0% (n=20)
Academic background	High school graduate	15.0% (n=3)
	2-year college graduate	15.0% (n=3)
	College graduate	65.0% (n=13)
	Master's degree	5.0% (n=1)

RESULTS

Based on previous research, there are 12 areas of basic competencies needed for construction industry as shown in Figure 1. These 12 areas of basic competencies for jobs needed for construction technicians are as follows: self-management, calculation, information application, resource management, technology application, problem-solving, communication, human relations, organization, work ethics, foreign language and job understanding abilities.

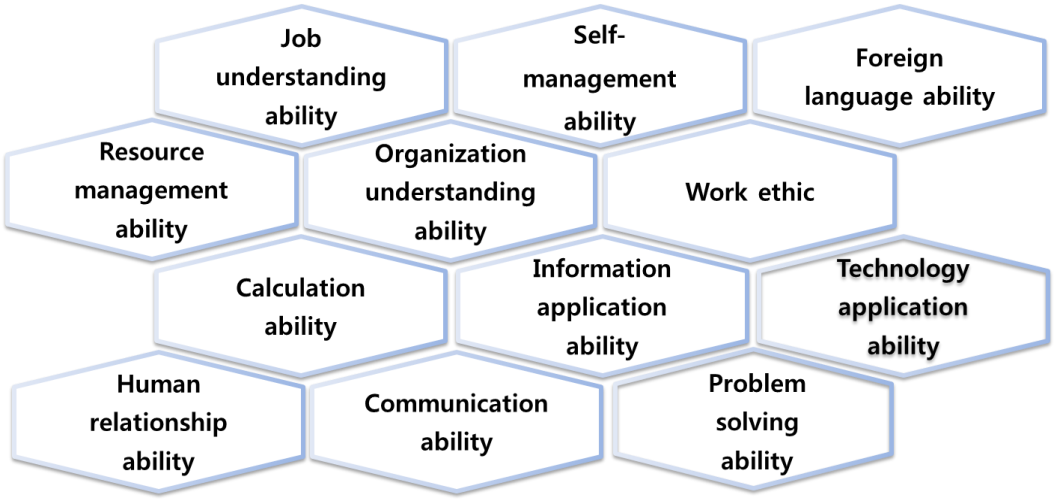

Figure 1: Basic competencies for construction technicians

Table 2 shows the definition of the 12 areas of basic competencies for the construction technicians. Self-management ability means the workers' self-management and development abilities to perform their jobs smoothly. Calculation ability means the workers' ability to understand and apply calculation, statistics, and probability to the given jobs. Information application ability means the workers' ability to collect, analyze and organize information related to the jobs given. Resource management ability means the workers' ability to utilize resources efficiently such as time,

capital, materials, facilities, and human resources. Technology application ability means the workers' ability to use technologies necessary for the jobs including tools and devices and to select and apply appropriate technologies to the actual jobs. Problem-solving ability means the workers' ability to solve the problems creatively. Communication ability means the workers' verbal ability to read, write, listen, and speak in order to complete a task. Human relations ability means the workers' ability to work with others effectively including cooperative ability, leadership, conflict management, negotiation and customer service abilities. Organization understanding ability means the workers' ability to understand the nature of organizational and management systems in their workplace. Work ethics means the workers' manner and work ethics in the workplace. Foreign language ability means the workers' ability to read, write, listen and speak in foreign languages. This study also defined job understanding ability as the workers' understanding of theoretical and practical knowledge needed to complete the tasks. The research of Jung *et al.* (2000) ad Ju *et al.* (2010) on each area of these basic skills for jobs has been summarized respectively.

Table 2: Definitions of the basic competencies

Basic competencies	Definition
Self-management ability	Workers' self-management and development abilities to perform jobs smoothly
Calculation ability	Workers' ability to understand and apply calculation, statistics, and probability to the given jobs
Information application ability	Workers' ability to collect, analyze and organize information related to the jobs
Resource management ability	Workers' ability to use efficiently the resources such as time, capital, materials, facilities, and human resources
Technology application ability	Workers' ability to use technologies necessary for the job including tools and devices and to select and apply appropriate technologies to actual jobs
Problem solving ability	Workers' ability to solve the problems creatively
Communication ability	Workers' verbal ability to read, write, listen, and speak
Human relationship ability	Workers' ability to cooperate with others including teamwork ability, leadership, conflict management ability, negotiation ability and customer service ability
Organization understanding ability	Workers' ability to understand organizational and management system
Work ethics	Workers' manners and work ethics in performing the jobs
Foreign language ability	Workers' ability to read, write, listen and speaking foreign languages
Job understanding ability	Workers' ability to apply the theoretical and practical knowledge needed for the jobs

Source: Jung *et al.* (2000) and Ju *et al.* (2010)

The scale of the questionnaire is from 1 to 5 points (1=absolutely not important, 2=not important, 3=average, 4=important, 5=very important). The results were tabulated in Table 3. As seen in Table 3, the on-site professionals considered self-management ability as the most important ability. The last important is the calculation ability. The moderate important skills include problem-solving, communication, organizational and foreign language mastery. Surprisingly, the work ethics is not highly rated by the on-site professionals in the construction industry. This result is similar to Lee and Kwon (2007) who examined basic skills for job needed for professional high school graduates working in companies located in Chungcheongbukdo province in Korea. The survey on basic competencies needed by professors and students of Korea Polytechnics College (Noh, 2011) and, the research of An *et al*. (2006) which investigated the basic competencies required by professional high school teachers also found that self-management and development ability as the most important.

Table 3: The rank of basic competencies for jobs based on the opinions of the on-site construction professionals

Basic competencies	Average	Standard deviation	Ranking
Self-management ability	4.80	0.52	1
Job understanding ability	4.75	0.44	2
Human relationship ability	4.60	0.75	3
Technology application ability	4.50	0.51	4
Problem-solving ability	4.45	0.69	5
Communication ability	4.45	0.69	5
Organization understanding ability	4.45	0.69	5
Foreign language ability	4.00	0.73	8
Information application ability	3.95	0.79	9
Work ethic	3.85	0.75	10
Resource management ability	3.75	0.64	11
Calculation ability	2.85	0.93	12

Based on the result regarding the importance of basic competencies for construction technicians, we have chosen the eight core basic vocational competencies. The main reason that eight core competencies were presented is that when the importance average values that professionals and education professionals indicated is below 4.0, they were not considered as important competencies for construction jobs. The standard of the result values was established conservatively. The mean values under 4.0 are not considered as important domains.

Figure 2 shows the core basic vocational competencies for the construction jobs as perceived by on-site construction professionals. Thus the eight key vocational competencies are self-management, job understanding, human relations, technology application, problem-solving, communication, organization, and foreign language abilities.

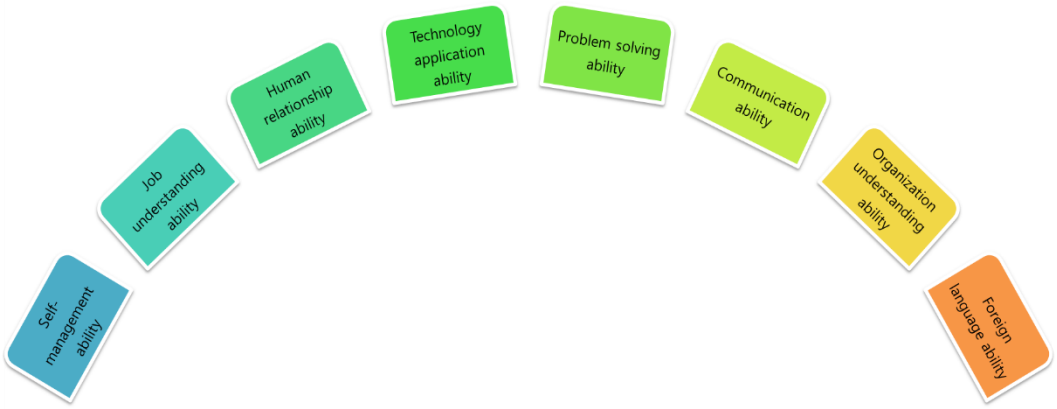

Figure 2: Revised core basic vocational competencies for constructive jobs

Table 4: The means and standard deviations for the eight core vocational competencies

Basic Competencies	Mean	Standard deviation
Self-management ability	4.80	0.52
Job understanding ability	4.75	0.44
Human relationship ability	4.60	0.75
Technology application ability	4.50	0.51
Communication ability	4.45	0.69
Organization understanding ability	4.45	0.69
Problem-solving ability	4.45	0.69
Foreign language ability	4.00	0.73

CONCLUSIONS

The purpose of this study was to determine the core competencies for construction technicians from the perspective of the on-site professionals of the construction industry in Korea. The respondents were asked to rate the importance of 12 areas of basic competencies for constructions jobs. These 12 areas of basic competencies for jobs are as follows: self-management, calculation, information application, resource management, technology application, problem-solving, communication, human

relations, organization, work ethics, foreign language and job understanding abilities. Out of 12 basic competencies, the researchers have decided to select the eight main basic competencies based on the means of the competencies. The mean values under 4.0 are not considered important domains. As a result, the eight core basic vocational competencies that are important in construction industry as perceived by on-site construction professionals. The eight competencies include self-management, job understanding, human relations, technology application, problem-solving, communication, organization, and foreign language abilities.

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