

Studies on Key Skills for Jobs that On-Site Professionals from Construction Industry Demand

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Abstract

This study aims at investigating key skills that construction industry demands by analyzing on-site professionals' opinions. The study distributed questionnaire to on-site construction professionals that has 12 areas for basic skills for jobs needed for construction technicians and asked the degree of the importance of each area. 11 areas that the questionnaire selected are based on the precedent researches and

1 area ‘job understanding ability’ that is based on the opinions of on-site professionals of construction industry and the research team. This study presents 8 key skills that are needed for professional high school student: self-management ability, job understanding ability, human relationship ability, technology application ability, problem solving ability, communication ability, organization understanding ability, and foreign language ability.

Keywords: Construction Professional Demand, SVHS, Key Skills for Jobs

1 Introduction

Hwang et al. investigated 12 areas of basic skills for jobs needed for construction technicians by analyzing on-site professionals’ opinions [1]. Lee and Kim arranged that essential skills are used the evaluation standard instead of qualification on employment and labor market. KRIVET(Korea Research Institute for Vocational Education and Training) presented K-CESA(Korea Collegiate Essential Skills Assessment) which is consisted of 6 different subareas such as ‘self-management skill’, ‘inter-personal relationship skill’, ‘global skill’, ‘communication skill’, ‘utilization of information resources and technology skill’ and ‘comprehensive thinking skill’ [2]. Han et al. presented 5 areas as key skills that match the change of industry and enterprise environment: problem solving ability, calculation ability, technology application ability, human relationship ability, communication ability [3]. This study presents key skills needed for SVHS graduates from construction department, which are asked by on-site construction professionals.

2 Methodology

The questionnaire was distributed to 20 professionals of construction industry and one-on-one interview with professionals was performed. <Table 1> indicates the information on interviewees. To extract key skills for jobs from construction industry demand, we asked the degree of the importance of 12 areas of basic skills for jobs. And the scale of questionnaire is from 1 to 5 points (1: absolutely not important, 2: not important, 3: average, 4: important, 5: very important). <Figure 1> is 12 basic skills for construction jobs that they presented.

Table 1. 20 Information of on-site professionals of construction industry

	Division	Participant(N=20)
sex	men	65.0% (n=13)
	women	35.0% (n=7)
field	architecture	40.0% (n=8)
	civil engineering	30.0% (n=6)
	Industrial equipment	25.0% (n=5)
	landscaping	5.0% (n=1)
career length	under 5 years	15.0% (n=3)
	from 5 years and longer to 10 years	55.0% (n=11)
	from 10 years and longer 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)

3 Results

The contents of each area of ‘basic skills for jobs’ needed for construction technicians by analyzing professionals of construction industry are shown in <Figure 1>. These 12 areas of basic skills for jobs needed for construction technicians are as follows: ‘self-management ability’, ‘calculation ability’, ‘information application ability’, ‘resource management ability’, ‘technology application ability’, ‘problem solving ability’, ‘communication ability’, ‘human relationship ability’, ‘organization understanding ability’, ‘work ethic’, ‘foreign language ability’ and ‘job understanding ability’.



Figure 1. Basic skills for jobs in this research

<Table 2> indicates the contents of 12 areas of ‘basic skills for jobs. Self-management ability means workers’ self-management and development abilities to perform jobs smoothly to be given. Calculation ability means workers’ ability to understand and apply calculation, statistics, and probability to jobs to be given. Information application ability means workers’ ability to collect, analyze and organize information related to jobs given. Resource management ability means workers’ ability to check up how much resources such as time, capital, materials, facilities, and human resources are needed, and to organize and apply them to actual jobs. Technology application ability means workers’ ability to understand technologies necessary for job performance including tools and devices and to select and apply appropriate technologies to actual jobs. Problem solving ability means workers’ ability to check up, evaluate and solve the problems creatively and when problems occur during job performance. Communication ability means workers’ verbal ability to read, write, listen, speak and a non-verbal ability to do jobs. Human relationship ability means workers’ ability to cooperate with others including cooperative ability, leadership, conflict management ability, negotiation ability and customer service ability. Organization understanding ability means workers’ ability to understand organization systems and management system including international trend for smooth job performance. Work ethic means workers’ ability to have responsibilities, manners and work ethic as a worker. Foreign language ability means workers’ ability to read, write, listen to and speak foreign languages. The research on each area of basic skills for jobs is summarized based on the precedent researches [4, 5]. Especially, this study defines ‘job understanding ability’ as ‘one to understand the basic practical knowledge and academic knowledge needed for jobs’ based on the opinions of on-site professionals of construction industry and the research team.

The scale of questionnaire is from 1 to 5 points (1: absolutely not important, 2: not important, 3: average, 4: important, 5: very important). The results are indicated in <Table 3> below. Seen in <Table 3>, the on-site professionals consider self-management ability as the most important. Job understanding ability, human relationship ability, technology application ability, problem solving ability, communication ability, organization understanding ability, foreign language ability, information application ability, work ethic, resource management ability and calculation ability are important in order. This result is similar to ones of Lee and Kwon who examined basic skills for job needed for professional high school graduates working in companies located in Chungcheongbukdo [6], the survey of Noh for professors and students of Korea Polytechnics College [7], and research of An et al who subjects are professional high school teachers [8]. The three latter studies all consider ‘self-management and development ability’ as the most important.

Table 2. Contents of ‘basic skills for jobs’

Basic skills for jobs	Contents
Self-management ability	Workers’ self-management and development abilities to perform jobs smoothly to be given
Calculation ability	Workers’ ability to understand and apply calculation, statistics, and probability to jobs to be given
Information application ability	Workers’ ability to collect, analyze and organize information related to jobs given
Resource management ability	Workers’ ability to check up how much resources such as time, capital, materials, facilities, and human resources are needed, and to organize and apply them to actual jobs
Technology application ability	Workers’ ability to understand technologies necessary for job performance including tools and devices and to select and apply appropriate technologies to actual jobs
Problem solving ability	Workers’ ability to check up, evaluate and solve the problems creatively and when problems occurs during job performance
Communication ability	Workers’ verbal ability to read, write, listen, speak and a non-verbal ability to do jobs
Human relationship ability	Workers’ ability to cooperate with others including cooperative ability, leadership, conflict management ability, negotiation ability and customer service ability
Organization understanding ability	Workers’ ability to understand organization systems and management system including international trend for smooth job performance
Work ethic	Workers’ ability to have responsibilities, manners and work ethic as a worker
Foreign language ability	Workers’ ability to read, write, listen to and speak foreign languages
Job understanding ability	Workers’ ability to understand the basic practical knowledge and academic knowledge needed for jobs

Table 3. Degree of importance of basic skills for jobs based on the opinions of on-site construction professionals

Basic skills for jobs	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

<Figure 2> shows the key skills for jobs that on-site construction professional demand. The 8 key skills are self-management ability, job understanding ability, human relationship ability, technology application ability, problem solving ability, communication ability, organization understanding ability, foreign language ability.

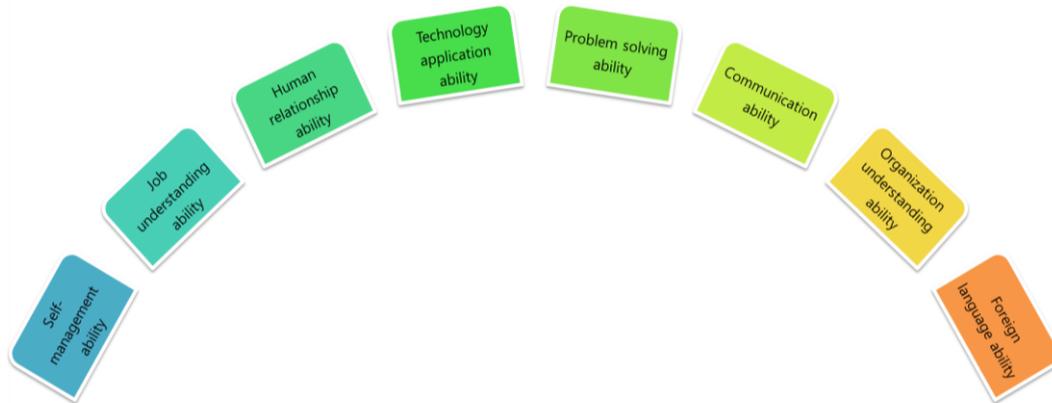


Figure 2. Key skills for jobs that on-site construction professional demand

The key skills for construction fields are listed in <Table 4>. The main reason that 8 key skills were presented is that when the importance average values that professionals and education professionals indicated is under 4.0, they were not considered as importance skills for construction jobs. The standard of the result values was established conservatively. Values under average 4.0 are not considered as 4 standard point which indicates “important”.

Table 4. 8 Key skills that on-site construction professional demand

Field	Average	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

4 Conclusions

We investigated to professionals of construction industry and asked the degree of the importance of 12 areas of basic skills for jobs. These 12 areas of basic skills for jobs are as follows: ‘self-management ability’, ‘calculation ability’, ‘information application ability’, ‘resource management ability’, ‘technology application ability’, ‘problem solving ability’, ‘communication ability’, ‘human relationship ability’, ‘organization understanding ability’, ‘work ethic’, ‘foreign language ability’ and ‘job understanding ability’. And the standard of the result values was established conservatively. Values under average 4.0 are not considered as 4 standard point which indicates “important”. As a result, the 8 key skills that construction industry demands by analyzing on-site professionals’ opinions are self-management ability, job understanding ability, human relationship ability, technology application ability, problem solving ability, communication ability, organization understanding ability, foreign language ability.

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