Employees' Perception On Vocational High School Graduates' Employability Skills Needed In Today's Oil and Gas Industry

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Abstract. The open unemployment rate of the vocational high school (SMK) graduates is still the highest of all education levels which is at 8.63%. This is because the competence of vocational school graduates is not yet in line with industry needs. Therefore, this study aims to determine the industry competencies that are most needed in the oil and gas industry according to the perceptions of the employees. The study implements a quantitative descriptive method through the survey method on habit, attitudes, and other things encountered during the working time. There are 164 respondents from various divisions. The result of the study shows that the employability skills needed in today's oil and gas sector are the skill to prioritize occupational safety, the skill to work together in team, the skill to apply theory into practice, the high learning motivation skill, the problem analysis skill, the skill to be adaptive to change and dare to make quick decisions. The employability skill learning can be implemented in the schools or the workplaces through the internship program.

Keywords: employability skill, vocational school graduate, oil and gas industry, internship

1. Introduction

On today's world, competition for employment is increasing rapidly, especially in the oil and gas industry. This is a challenge for the vocational high school to be able to design and implement programs that are in accordance with the missions and the objectives in order to produce workforce that fits the needs of the industry.

Vocational high school graduates still cannot meet the needs of the workforce completely. Although the employment opportunities offered are quite high, the existing graduates are not optimally absorbed in the oil and gas industry. Data of Statistics Indonesia (BPS) in February 2019 showed that the unemployment rate based on education was dominated by Vocational High Schools which was 8.63%. This showed a gap between the needs in the industry and the provision of the workforce from the vocational high school graduates.

The number of the unemployment shows the failure of the vocational high school system in producing graduates who are ready to work. More specifically, the main problem is that the graduates' competence and expertise do not meet the expected requirements of the industry including the characteristics and the qualifications of the workforce needed by the industry.

At the moment, the biggest challenge for the vocational high school is to produce the graduates who have balanced academic skills, mastery skills, and employability skills. In addition to the demands of basic skills and technical skills or skills in the field of interest, the

ISET 2019, June 29, Semarang, Indonesia

DOI 10.4108/eai.29-6-2019.2290284

industry requires the existence of employability skills that must be owned by a prospective workforce in accordance with the current issues [1]. Employability skills are specifically related to one's ability to work in various situations and have the ability to think critically, communicate effectively, and have the strength as well as the enthusiasm to continue to study and work.

Employability skills are considered very important because current job characteristics require the employees' initiative, flexibility, and ability to handle different tasks. Therefore, the researcher want to know the employability skills that are most needed by the industry based on the perceptions of the employees so that they can be inputs to improve the curriculum of the vocational high school.

2 Methods

This study uses a quantitative non-experimental survey approach. The data samples were obtained from the population by collecting questionnaires completed by the respondents. as a data collector. They are 164 operators/technicians who work for the oil and gas industry in various divisions and 26 supervisors.

The questionnaires are used to get a list of the most needed employability skills. The questionnaire is adapted from Survey of the Employability Skills Needed in the Workforce designed by J. Shane Robinson [2]. The respondents completed the questionnaires based on their experience, attitude and professionalism during their work. There are 50 items of questions using 4 scales, namely: 1 = not important, 2 = quite important, 3 = important and 4 = very important. The results of the questionnaire were calculated based on the average value and standard deviation.

The list of employability skills that belong to the important category and the very important category based on the respondents' perceptions were confirmed to the supervisors. Questionnaire results from supervisors were averaged using 4 categories. Category I with a value range above 3.26 is the most needed skills, category II with a value range of 2.51 - 3.25 is the required skills, category III with a value range 1.76 - 2.50 is sufficiently needed skills and category IV with a value range less than 1.75 is a skill that is not needed.

3 Results and Discussion

29 of 50 items in the questionnaire are considered as the important category and the very important category with an average value of more than 2.51. This can be seen in Table 1.

Table 1. Employability skills of the graduates needed by the industry based on the operators'/technicians' perception

	Mean	SD
Problem Solving and Analytic		
Solving Problem	2.55	0.64
Being confident about tackling unfamiliar problems	2.68	0.65
Having sharp analytical skills	3.29	0.76
Decision Making		
Making decision independently	3.34	0.70
Making decisions on the basis of through analysis of the situation	2.73	0.62
Organization and Time Management		
Setting priorities	2.74	0.57
Meeting deadlines	2.68	0.64
Being responsible and reliable	2.85	0.56
Communication Ability (Oral, Written and Listening)		
Giving clear explanation about problems and treatment	2.85	0.68
Interpersonal Skill		
Having ability to work as a team member	3.58	0.64
Relating willingness with supervisor	2.82	0.67
Establishing good rapport with patients	2.89	0.51
Having good manner-respect, caring, friendly, enjoy the job, inspiring, confidence	2.91	0.64
Leadership and Influence		
Giving direction and guidance to others	2.85	0.62
Creativity, Innovation, Flexibility and Ability to Conceptualize		
Providing novel solutions to problems	2.86	0.51
Adapting to situations to problems	3.59	0.60
Demonstrating critical thinking ability, generating hypotheses and linking ideas	3.01	0.41
Applying theory into practice	2.84	0.68
Lifelong Learning		
Keeping up to date on latest information regarding the professionalism	2.98	0.48
Having willingness to gain new knowledge	2.95	0.58
Professional Behavior		
Having appropriate skills and knowledge	2.84	0.64
Being honest and knowing his/her own limitations	2.95	0.41
Seeking further knowledge as required to help patients	2.91	0.55
Working safely	3.72	0.55
Motivation Personal Strength		
Maintaining a high energy level	3.66	0.71
Functioning at an optimal level of performance	2.83	0.55
Responding positively to criticism	2.91	0.50
Maintaining positive attitude	2.82	0.56
Functioning well in stressful situations	2.93	0.48
Having ability to work independently	2.86	0.62

Table 2. Employability skills of the graduates needed by the industry based on the supervisors' perception

Category	Employability Skill	Mean	SD
I	Working safely	3.73	0.45
	Having ability to work as a team member	3.46	0.58
	Applying theory into practice	3.46	0.71
	Maintaining a high energy level	3.46	0.76
	Having sharp analytical skills	3.42	0.76
	Adapting to situations to problems	3.38	0.80
	Being able to make decision independently	3.35	0.75
II	Being honest and knowing his/her own limitations	2.88	0.52
	Functioning well in stressful situations	2.77	0.51
	Having ability to work independently	2.73	0.72
	Demonstrating critical thinking ability, generating hypotheses and linking ideas	2.65	0.49
	Providing novel solutions to problems	2.62	0.70
	Responding positively to criticism	2.58	0.50
	Seeking further knowledge as required to help patients	2.54	0.65
III	Giving direction and guidance to others	2.50	0.58
	Maintaining positive attitude	2.46	0.65
	Keeping up to date on latest information regarding the professionalism	2.46	0.51
	Having good manner-respect, caring, friendly, enjoy the job, inspire confidence	2.46	0.71
	Establishing good rapport with patients	2.46	0.58
	Setting priorities	2.46	0.81
	Being confident about tackling unfamiliar problems	2.46	0.81
	Solving Problem	2.42	0.76
	Having appropriate skills and knowledge	2.42	0.70
	Functioning at an optimal level of performance	2.38	0.64
	Having willingness to gain new knowledge	2.35	0.56
	Giving clear explanation about problems and treatment	2.35	0.75
	Relating willingness with supervisor	2.31	0.68
	Meeting deadlines	2.19	0.63
	Being responsible and reliable	2.15	0.67
	Making decisions on the basis of through analysis of the situation	2.04	0.53

Education must be able to adjust the industry needs. The quality development of the vocational learning in line with the industry need is a must for the vocational high school. 30 employability skills involved in the important category and the very important category based on the operators'/technicians' perception (as shown in table 1) were then confirmed to the supervisors. The result presents that there are 7 employability skills that are most needed in the oil and gas industry today, namely applying safety in work, being able to work together in

teams, applying theory into practice, having high learning motivation, having problem analysis, being adaptive to change and being able to make decisions.

Prioritizing the occupational safety is the most important skill that graduates must possess. Safety is the most important thing in the oil and gas industry, because one of the properties of the oil and gas industry is high risk so that the employees are required to apply safety in their jobs [3].

In addition, graduates must be able to work together in teams. To fulfill this ability, students must be given opportunities to group structured as a team, one of which is to use a model of project-based learning [4]. Therefore, when the graduates work in the future, they will be able to interact with various educational backgrounds, ethnicities and races in the oil and gas industry [5].

The third employability skill is applying theory into practice. The vocational high school graduates must master practical skills in accordance with skills needed in the industry. These skills can be provided through internship programs. Management of project-based learning can enhance graduates' confidence [6].

Furthermore, high motivation of the graduates is essential. The motivation is an encouragement from ourselves to be better [7]. Technological developments require the graduates to follow the needs of the industry. This is in accordance with the demands of the industrial revolution 4.0 that the vocational high school graduates must be competent and ready to work.

No less important skill is the ability to analyze problems. Project-based learning is a learning method that requires students to create a project that aims to solve a problem. This learning method teaches students to get used to face problems, analyze the source of the problem and determine the best ways to solve the problems [8]. The ability to analyze good problems will make the graduates easily adapt to the problems at work in the future.

Besides that, the vocational high school graduates must have adaptive nature to change and industrial technology that develops very rapidly. Nevertheless, in fact, schools have not been able to provide simulation equipment or practice in accordance with the equipment in the industry. On the other hand, the graduates must be able to use the latest technology, especially in the oil and gas industry. The concept of link and match with industry is one way to bring the students to be closer to industry [9].

The ability to make decisions quickly is also needed by the graduates. Every problem faced at work must be resolved immediately. The teacher can train the students' abilities through giving assignments that require a short and immediate time to complete. Problem-based learning can be used as a learning method as well. This learning starts from a problem that must be sought for the root of the problem, alternative solutions, and how to solve the most appropriate problems. Problem-based learning is proven to be able to improve the ability of analysis and problem solving quickly for the vocational high school students [10].

Perceptions of operators and supervisors about the employability skills that are most needed by industry today can be the information for vocational schools to develop appropriate curriculum and learning programs. Bringing the graduates' competencies closer to the needs of the industry is a provision for the graduates to enter the workforce. Improving the cooperation network with the oil and gas industry through the link and match program can include industry visits, guest teachers, public lectures, industrial work practices and industry-specific classes to improve graduates' competencies [11].

4 Conclusion

This study shows that improving the quality of the vocational high school graduates can be directed according to the needs of the industry to meet employability skills based on the employees' perceptions. This can be used as a reference in developing and improving the quality of curriculum and learning methods. One of them is the application of project-based learning methods and industrial work practice programs.

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