The Influence of Soft & Hard Skills on the Graduates Competence Vocational High School Students

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Abstract

Statistics Indonesia (BPS) released about unemployment in Indonesia in February 2020. The highest open unemployment rate (TPT) occurred in residents with Vocational High School (SMK) graduates, reaching 8.63%, followed by Diploma I/II/III and high school (SMA) levels, respectively 6.89% and 6.78%. This becomes very ironic because the aim of SMK is to produce competent graduates who are ready to work in the industrial world (DUDI). Therefore, SMK graduates are expected to have the competencies needed by DUDI. The purpose of this study was to determine soft skills competencies, including the ability to communicate, adapt and hard skills competencies, namely technical skills such as drawing, calculating costs and others required by the industry. This type of research is qualitative and the data collection technique is carried out by using questionnaires and focus group discussions with DUDI actors. Data analysis uses Affinity diagrams (K-J method), which makes it easier to analyze data from brainstorming. The results of this study can identify soft skill competencies: honest, thorough, able to solve, adaptable, able to work as a team, able to work under pressure while hard skill competencies: survey, mapping, drawing, structure and construction cost estimation, and project scheduling.

Keywords: Skills, Graduates, Competence, Vocational

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Introduction

In the current era, the industrial world has grown very rapidly. Because this requires a workforce who is able to manage skillfully and with high knowledge. For this reason, the importance of HR planning by an organization is to anticipate long-term losses due to the result of workers who are not ready to face change and work demands (Benjamin, et al. , 2017). Industrial era 4.0 all emphasizes the conditions of the digital economy, artificial intelligence (Artificial Intelligence), big data, robotic data, and others, otherwise known as disruptive innovation. To fulfill this, the need for skilled human resources in their fields is needed, software engineering (RPL) is one of the most important parts of Industry 4.0, and the need for experts in the field of digital technology is getting higher along with the development of the digital and e-industry. commerce in Indonesia. Moreover, with the Internet of Things, the need for IT personnel is very high (Ristekdikti, 2018).

Jombang is one of the cities that has become a trendsetter for young Indonesian startups, there are 92 studio or startup companies and this number will increase with time or the development of the industry itself (BE-KRAF & PMK3, 2017). Vocational High School (SMK) is an institution engaged in the field of Vocational Education and its purpose is to prepare prospective middle class workers in the world of work, and to develop professional attitudes. based on a survey conducted by the Central Statistics Agency (BPS) in 2018, the Open Unemployment Rate (TPT) based on education is occupied by SMA / SMK graduates, namely at 52.31 percent and this is very worrying, many industry players criticize the quality of the graduates who Not ready to use, these things show that SMK is not in accordance with what is expected by the industrial world and proves that the quality level of SMK is less relevant to industry demands, besides not being absorbed by SMK graduates (BPS, 2018).

According to McMurchie in Agustin (2009) in the world of work not only choosing prospective employees / workers who are smart in academic abilities (hard skills), but also must pay attention to other skill values including honesty at work, having a high sense of responsibility, being polite. polite in acting, disciplined, able to commit, have self-confidence, ethical, able to work together, have high creativity, communicate, and leadership (soft skills). Someone has high hard skills, but does not have soft skills, so the human resources that are created are not optimal. SMK (SMK) graduates are not only required to master hard skills, but also must be able to have soft skills skills as a supporting tool for hard skills so that later they are able to work productively and with quality.

Based on the opinions of experts, the researchers used the measurement of soft skills as stated by Sharma in Wardani (2012), there are five indicators in measuring soft skills including: communication, ethics, motivation, leadership and problem solving. Meanwhile, based on the results of interviews, the soft skills taught at school include: discipline, communication, teamwork, critical thinking, leadership, responsibility, ethics, creative thinking, professionalism and morals.

Hard skills are a person's ability to master science and technology as well as technical skills that have a close relationship with their field of knowledge. Hard skills are skills that are technical in nature, these skills are inherent and needed for certain professions, for example a programmer is required to master techniques in programming using a certain language (Kadek, 2012).

According to the Ministry of Education and Culture (2017) competency skills (C3) taught in Vocational High Schools with Software Engineering expertise include Software Modeling, Database, Object-Oriented Programming, Web Programming and Mobile Devices, the latter being Creative Products and Entrepreneurship.

The purpose of this research is to find out the expectations of the information technology industry and the reality of the hard skills and soft skills of software engineering SMK graduates, to see the gap between the expectations and reality of the graduates' hard skills and soft skills and to know which competencies are prioritized and need attention in improving the quality of education in SMK .

Method

The first thing to do is make observations at 3 state Vocational High Schools in the City of Jombang, schools that contribute, namely SMKN 5, 11 and 12 Malang, observations are made to obtain information about the soft skill components of RPL Department Vocational High School graduates, as well as the Hardskill components that are taken. of the basic competencies needed by the world of work in the field of information technology majoring in Software Engineering.

Furthermore, designing a questionnaire in the form of a questionnaire grid, which is then developed into items, then validated by the expert, the number of participating experts is 2 people, then the questionnaire is ready to be distributed in information technology companies with software engineering expertise in the City of Jombang. After distributing the questionnaire, data is obtained which is then processed and analyzed, after which a conclusion can be drawn which is the answer to the problem formulation.

This type of research is used, namely evaluation, this research is made to answer questions and test or prove a hypothesis. The research approach used is a quantitative approach which is then supported by a qualitative approach. Quantitative is used in analyzing data, while qualitative is used as the basis for considering that symptoms in research are the processes used, namely through studies on the behavior or activities of the actors who take part in it.

Result and Discussion

Result

In table 1 is a table of the average expectations of IT companies with the soft skills ability of SMK RPL graduates, the average reality in the competency field of SMK graduates, and the value of the gap that occurs between the expectations of IT companies and the reality of the competencies possessed by graduates. The average expectation shows the most expected abilities, namely discipline, leadership and creative thinking, each percentage is 10.30%, critical thinking percentage is 10.20%, communication percentage is 9.99%. for ethics and morals each percentage was 9.89%, team cooperation the percentage was 9.78%, and for responsibility and professionalism each had a percentage of 9.68%. Overall, the average company expectation on the soft skills ability of SMK RPL graduates is 4.86, this indicates that the company's expectations indicate a very satisfied category. The average reality in the field of soft skills skills of SMK RPL graduates shows that the ability to think creatively with a percentage of 12.02%, for the ability of responsibility it has a percentage of 10.87% while moral has a percentage of 10.30. Furthermore, namely discipline, critical thinking, ethics and

professionalism, each of which has a percentage of 10.01%, teamwork and leadership respectively 9.16% and communication percentage of 8.44%. Overall the average reality in the soft skills field of SMK RPL graduates is 3.50, this indicates that the reality in the field of graduates shows that the category of being satisfied has not met the expectations of the company which expects to be very satisfied. Communication skills show the highest GAP score with a score of 1.9, this shows that the level of company expectations for the capabilities of company employees is very high, but it is not balanced with the reality in the field of company employees, company employees are aware of the importance of communication skills but employees are unable to demonstrate good communication skills, both with fellow employees and superiors.

Tabel 1. Expectations, Realities and GAP Analysis on Soft Skills Variables

Indicator	Average Expectations	Average Reality	GAP
Discipline	5	5	1,3
Communication	4	3,3	0,5
Teamwork	4,3	3,1	1,5
Critical thinking	4,6	3,7	1,8
Leadership	4,3	3,6	1,2
Responsible	4,1	3,8	1,3
Ethics	4,7	3,1	1,24
Creative	4,6	3,7	1,53
Thinking	4,8	3,6	1,29
Professionalism	4,6	3,8	1,28
Moral	4,4	3,4	0,26
Average	4,86	3,50	1,36

For the average reality in the field of hardt skills skills of SMK RPL graduates shows that the ability of Web Programming and Mobile Devices with a percentage of 21.85%, then the ability of Databases with a percentage of 20.87%, for Object Oriented Programming the percentage is 20.41% while Software and Creative Product Modeling and Entrepreneurship each had a percentage of 18.42%. Overall, the average reality in the hard skills field of SMK RPL graduates is 3.50, this shows that the reality in the field of graduates shows that the category of being satisfied has not met the expectations of the company which expects to be very satisfied.

In the hard skills variable, it can be seen that the ability of Creative Products and Entrepreneurship shows the highest GAP value with a value of 1.75, this shows that the level of company expectations for the capabilities of company employees is very high, but it is not balanced with the reality in the field of company employees, while the lowest GAP occurs in the Web Programming and Mobile Devices indicator with a GAP value of 1.2, this shows that the gap in the ability of Web Programming and Mobile Devices is slight, meaning that employees can implement the knowledge gained during schooling at SMK, this is evidenced by the abilities that employees have. meet expectations although not 100% meet. The existence of the GAP value on the hard skills variable indicates that the knowledge taught at SMK has not met the criteria expected by the company, and for that vocational high schools in the future to improve the learning system or manage knowledge of hard skills properly, so that in the future there will be gaps in SMK graduates of the Device Engineering Department. Soft can be minimized.

Discussion

Based on the results of research on the soft skills variable, there are 10 indicators, these indicators are the knowledge or abilities taught by Vocational High Schools with the field of Software Engineering expertise, all indicators contained in the soft skills variable are the company's expectations of the abilities possessed by SMK graduates with the field of expertise. Software Engineering expertise. Overall company expectations of the knowledge or soft skills of SMK RPL graduates in the industrial world show high expectations, this is because the industry's ability to think that success in companies is not only based on hard skills, but also on soft skills. skills with a larger portion than the ability of hard skills.

For the reality in the field of the ten indicators of soft skills taught in Vocational High Schools with Software Engineering expertise show satisfied competencies, this shows that SMK graduates with Software Engineering expertise are able to implement competencies obtained during school in SMK, the above statement is supported by research conducted by Yuminah et al. (2020) explains the results of the assessment using the Usual Criterion type with a decision result of 55% of the employees' abilities on soft skills and 45% of their abilities are not good, the data uses an accuracy rate of 93%.

For the gap (GAP) in users of Software Engineering SMK graduates on the soft skills variable based on the results of the research that has been done shows a low average result, this shows that there is still a gap between expectations and perceptions of graduates, the existence of the GAP value in the soft skills variable indicates that the knowledge taught at SMK has not met the criteria expected by the company, and for that, vocational high schools in the future will improve the learning system or manage soft skills knowledge properly, so that in the future the gap between SMK graduates in the Software Engineering Department can be minimized. This is supported by research by Nani et.al (2017) which explains that the User Assessment of Alumni there is a low gap between expectations and perceptions of graduates such as discipline, honesty, motivation, work ethic, ability to apply skills in work, work productivity,

problem solving, adapting to the work environment, communicating, being able to express opinions or ideas, teamwork, social skills, being able to take advantage of information technology, being able to self-development, openness in accepting criticism and suggestions, self-confidence. For the results of the science analysis that has been carried out, it can be seen that, in the soft skills variable, it shows that in quadrant I the ability that IT companies really expect, while the perception fulfills expectations, namely leadership abilities, it would be nice for schools to be more able to explore and instill the spirit of leadership that graduates have. so that in the future graduates can meet company expectations of the leadership abilities of IT company employees who are graduates of SMK RPL. This is confirmed by research conducted by Widarto et.al. (2012) which states that the ability of the workforce needed by the industry, namely the aspect of soft skills, including leadership skills, personality and motivation are the most dominant abilities as the main requirements needed in the industrial world. Furthermore quadrant II, on disciplinary skills, critical thinking and creative thinking, indicators expected by the company, and graduates are able to carry out their work or graduates are able to implement the knowledge gained in SMK on IT companies disciplinary skills, teamwork and ethics should be maintained, or even be improved again. The discipline indicators are strengthened by the results of research by Liyas & Primadi (2017). Based on the results of the study, it is explained that the level of magnitude has an influence on the attributes or variables of work discipline on the performance level of employees in the company with a percentage value of 74.8%, because the percentage obtained is large. , then discipline deserves to be

maintained and improved because the discipline ability of employees has a strong influence on employee performance, so that later employees are expected to be able to show discipline within.

Furthermore, quadrant III is an indicator that is not expected by the company, in addition to that, the fact is that the ability of employees does not master the knowledge gained in SMK, and also is not able to implement it in the company. Therefore, the indicators in this quadrant should be reviewed or reconsidered, whether these indicators are improved or not, these indicators are the ability to communicate and the ability to work together in teamwork. Communication skills are in accordance with the research conducted by Putri & Hariawan (2015). Communication indicators in quadrant III, in his research, show the factors that do not really matter to customers. In its implementation by the company it is normal or unsatisfactory. There are two attributes included in quadrant III, namely communicating in the delivery of information processes.Furthermore, quadrant IV is an indicator expected by IT companies, but in reality in the field of graduate employees are able to implement the knowledge that has been obtained in SMK, as for indicators of ethical ability, responsibility, professionalism and moral. The company hopes that these abilities are not really expected by the company, but actually the abilities possessed by employees of SMK RPL graduates are able to implement their knowledge, therefore schools do not need to worry about the soft skills abilities of SMK graduates, because employees already have good abilities. The evidence on ethical indicators is in accordance with research conducted by Chandra (2011). Company ethical standards are considered to be good mastery by employees, but in fact they consider these attributes less important. Therefore, companies do not need to worry about this attribute because employees already have a good competitive advantage. For the attributes of company ethics, employees have mastered it well so that consistency is needed in maintaining it.

There are 5 indicators for the hard skills variable, these indicators are the knowledge or abilities taught by SMK with the field of Software Engineering expertise, all indicators contained in the hard skills variable are the company's expectations of the abilities possessed by SMK RPL graduates. Overall company expectations of the knowledge or hard skills of SMK RPL graduates in the industrial world show high expectations, this is because the industry considers hard skills as the main ability needed, but based on this research shows that the average expectation of soft skills skills is greater. Rather than the ability of hard skills, this is supported by Firdaus (2017) which states that the process of achieving success in the world of work requires several factors. Academic ability is not enough. Non-academic ability is a fundamental factor in success in the world of work. Hard skills and soft skills are a combination that must be well integrated. Based on the results of the research for the realities of the field on the hard skills competency of SMK RPL graduates in the world of information technology industry, the ten indicators of hard skills taught in Vocational High Schools with Software Engineering expertise show satisfied competencies, this shows that SMK graduates with Software Engineering expertise have been able to implement competencies obtained during school in SMK, this is confirmed by Sulistianingsih's opinion in the journal Agung Panji S, et.al (2015) which states that mastery of high productive subjects shows that students master educational and training materials that have been taught at school well.

Conclusion

The company hopes for the soft skills and hard skills competencies of SMK RPL graduates with a very satisfied level of expectation and the reality in the field shows that the ability is satisfied but has not met expectations. The existence of a gap between company expectations

and reality in the field of soft skills and hard skills of SMK RPL graduates, this occurs because graduates do not master the knowledge and are not optimal in developing their skills. Abilities that are prioritized are soft skills, namely leadership, whereas in hard skills there is no priority, but schools need to pay attention to the soft skills variable, namely discipline, critical thinking and creative thinking, while hard skills variables are databases and Web Programming and Mobile Devices.

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