

Strategies for Development of Industrial Labor Competency of Vocational High School Graduates

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ABSTRACT

Vocational high schools are expected to be producers of ready-to-work labor to meet the needs of the business and the industrial world in Indonesia. However, according to the Statistics Indonesia (2019)^[1] regarding the education category, the most sizeable percentage of unemployed graduates from vocational high schools is 10.42% of the total unemployed. This study aims at determining the competencies of labor needed by the industrial world by examining gaps, identifying the leading factors causing problems and formulating alternative strategies that can be used as a reference to the government as education manager. Depth interviews and surveys are data collection methods used. Subsequent, descriptive analysis and AHP are the data analysis method used to determine the priority weight of strategic alternatives. The results of a conducted study showed that the existing skill competencies in vocational high schools must be relevant to industry needs. The determination of skill competencies at vocational high schools can be obtained from several fields of expertise needed by industry and is divided into several expertise programs. From this expertise program, it can be determined what skill competencies are needed by the industry. There are three (3) main factors affecting the competency of vocational high school graduates, including infrastructure competency, competency-based education and industrial needs. Based on the AHP weighting results, the strategic priorities are alignment of the curriculum, syllabus and modules according to industry needs with a weight of 26.1%, fulfillment of practical infrastructure facilities with a weight of 24.7%, fulfillment of productive teacher needs and use of silver experts with a weight of 20.1%, providing

incentives to industries carrying out guidance and development of vocational high schools with a weight of 11.7%, organizing internships for students and industrial apprenticeships for teachers with a weight of 10.8% and certification of student competencies with a weight of 6.6%.

Keywords: AHP, competence, labor, link and match, vocational high schools.

INTRODUCTION

In 2019, the workforce in the country reached 136.18 million people, and as many as 6.81 million people or 5.01% were unemployed. Of the total unemployment rate, vocational high school graduates represented the second most considerable contribution with 1.38 million people or 20.27%. When viewed from the perspective of unemployment towards the aggregate number of graduates, vocational high schools are in the top rank with an unemployment percentage of 10.42% and annually have a percentage of unemployment towards graduates above 10% (Statistics Indonesia, 2019)^[1].

The high unemployment rate in Indonesia is caused by the gap between the competencies possessed by vocational high school graduates and the needs of the industrial world. Vocational education, projected as the spearhead of the ready-to-work labor, is expected to be absorbed directly by the industry. However, the industry has been unable to absorb vocational high school graduates because the competencies possessed by vocational

high school graduates have not met the standards required by the industry.

The current condition between vocational high schools and industrial needs for graduates has not yet matched. It is due to the difference in the gap between supply from vocational high schools and demand from industry. These gaps include (1) the curriculum referred to the vocational high school graduation standards which should implement a curriculum producing ready-to-work graduates, yet the graduate competences refer to the old curriculum which should be competent according to industry needs; (2) the number of productive teachers is only 22%, and 78% normative and adaptive teachers in which it should have More than 60% of productive teachers; (3) the portion of practical learning is only 40%, and theory is 60% in which it should be 70% of practical learning, and theory is 30%; (4) teacher competence is lagging behind the needs of industry, in which teacher competence should be more updated regarding industrial conditions.

Government policy in overcoming unemployment, especially vocational high school graduates, is the issuance of Presidential Instruction number 9 of 2016 concerning the revitalization of vocational high schools to improve the quality and competitiveness of Indonesian human resources. Following up the Presidential Instruction, through ministries and institutions, one of which is the issuance of Regulation of the Minister of Industry number 3 of 2017 concerning guidelines for fostering and developing competency-based vocational high schools linking and adapting the needs of industry to increase the competitiveness of the labor. Moreover, through competency development for vocational high school graduates, the aim of vocational high school graduates is absorbed by industry. To have right-on-target implementation of the program, it is necessary to take appropriate and efficient steps both in terms of time and costs incurred to achieve the intended objectives. It is a form of the government's concern on

producing competent human resources which are one of the attractions of foreign investors to invest in Indonesia to achieve maximum economic growth.

LITERATUR REVIEW

Competence was first proposed by McClelland (1973)^[2], in which he described that competency standards should be abilities affecting the performance and not intelligence of students. Spencer and Spencer (1993)^[3] proposed that competency was a management mode based on ability. Its purpose is to determine and ascertain which abilities and performance lead to producing an excellent job. Competence is a combination of knowledge, skills, values and attitudes reflected in the habit of thinking and acting. According to Spencer and Spancer (1993)^[3] competency is the essential foundation of human characteristics, and it indicates how to behave or think, equate situations, and support for long periods of time.

According to Runtu et al. (2015)^[4] competency enables a person to apprehend work-related tasks needed to achieve the goals. The concept of competency applied in Indonesia has been formulated through the output of the Indonesian National Work Competency Standards (*SKKNI; Standar KompetensiKerja Nasional Indonesia*), formulating the workers' competency which includes aspects of knowledge, skills and attitudes. A study tried to crystallize various lists of competencies to produce a hierarchy of competencies grouped into nine (9) competency dimensions; those are (1) quantitative managerial, (2) ethics, (3) leadership, (4) analysis, (5) qualitative management/Information, (6) Worker self-Quality, (7) Personal Adjustment, (8) Learning and Understanding Something, and (9) Achieving Results (Pamela, 2006)^[5].

In research conducted by Wijayanto et al (2011)^[6], he stated that employee's competency, both the soft and the hard competency, significantly affects employee performance. Whereas, it can be stated that the soft competency affects employee

performance more significantly than the hard competency they have. It is in line with Promis (2008)^[7] stating that soft skills (soft competency), which have been believed to be more beneficial for high management positions, have presently proven that these competencies are fundamentally important for all types and levels of work in the world of professional work. Furthermore, Pertiwi (2016)^[8] also states the efforts to improve competency can be used as a solution to improve performance.

According to Adiarto and Fedryansyah (2018)^[9], the efforts to improve the quality of personnel (competency) can be established by giving job training from various vocations, providing psychological training, giving motivation training, applying work-discipline atmosphere, and having management control. Haryadi (2010)^[10] further explains that the competency of construction workers can be improved by training involving the government and construction sector stakeholders. Winangun (2017)^[11] explains that to produce a labor with good competencies can be achieved through a simple curriculum structure and productive learning strategies, and the support creative teachers/instructors believed to be effective and efficient.

Competency development is carried out by ASEAN countries through the ASEAN Economic Community (AEC) with the aim of creating economic integrity based on market production and free flow of skilled labor in the region. In 2006, the International Labor Organization (ILO)^[12] developed a competency model in consultation with the government, employers and workers' representatives in the Southeast Asia region as a standard guideline for competency development called the Regional Model Competency Standard (RMCS). Niswati (2015)^[13] stated that the competency model that will be used in competency development in Indonesia was the Regional Model Competency Standard (RMCS) which is ideally suitable in facing the AEC because it adopts

international standards. RMCS is a competency standard setting model introduced by the International Labor Organization (ILO)^[12].

METHODS

This research was conducted within the Industrial Human Resources Development Agency of the Ministry of Industry and industry which has implemented a link and match program with vocational high schools. The research site selection was chosen intentionally or purposively with the consideration that the Ministry of Industry is in charge of several industrial vocational high schools and is the initiator of the launch of a link and match program between vocational high schools and industry.

Sampling is done using non-probability sampling method. According Sumarwan et al. (2018)^[14], non-probability sampling is sampling with each respondent not having the same opportunity using judgment sampling. Judgment sampling is a sampling technique based on the expertise of the subject being studied. The subjects studied in this case are government officials and industry practitioners participating in the launch of the link and match program between vocational high schools and industry.

Analytic Hierarchy Process (AHP)

According to Saaty (2001)^[15] Analytic Hierarchy Process (AHP) can be used with the aim of lowering the ratio scale of several paired comparison objects, both discrete and continuous. Actual or relative measurements of the degree of liking, or importance or feeling will obtain pairwise comparisons. To determine priorities in decision making, it is necessary to know the level of consistency. A high level of consistency is needed in decision making, so that the decision results obtained are more accurate. The maximum value of the consistency ratio is 10 percent. If the consistency ratio value exceeds that number, the considerations that have been made need

to be improved. The number of experts used in this study is 4 people from the Ministry of Industry, the Office of Education and Culture of Central Java Province and PT. Komatsu Indonesia.

RESULTS AND DISCUSSION

Skills Competencies of Vocational High Schools Graduates Needed by Industry

The existing skill competencies in vocational high schools must be relevant to industry needs. It is in accordance with the research conducted by Disas (2018)^[16] stating that the link and match policy between vocational high schools and the industrial world is a solution to reduce unemployment because it can find out the skill competencies needed by the world of work. The determination of skill competencies at vocational high schools can be obtained from several fields of expertise needed by industry and is divided into several expertise programs. From this expertise program, it can be determined what skill competencies are needed by the industry. Besides, determining the skill competency required by a particular industry must be guided by the Indonesian National Competency Standards (*SKKNI; Standard Kompetensi Kerja Nasional Indonesia*) having been prepared by experts from the industry itself and other stakeholders. The competency of expertise that the industrial world wants to achieve includes aspects of knowledge, skills and Attitude, in which these three (3) aspects have been formulated through the output of the SKKNI. These three (3) aspects must be fulfilled by graduates to meet the competency standards required by the industrial world. Vocational high schools as a producer of ready-to-work labor must focus on a specific skill competency needed by industry, so that the teaching staff and equipment needed in learning and practicum can be obtained directly and efficiently. With the focus of Vocational High Schools on just a specific skill competency, it can help to make the government easier, in this case education manager, to map which

industries be the supervisors of the Vocational High Schools.

The need for expertise competency in the manufacturing industry will repeatedly change according to changes in technology and equipment used by the industry. For this reason, it is necessary to conduct an evaluation in the form of input from the industrial world regarding the competency requirements used, so that alignment can be carried out for learning in the world of education.

Strategies of Competency Development for Vocational School Graduates in Facing the Demands of the World of Work

Identification of problems

There are several considered issues in formulating a strategy of competency development. These issues can be grouped into four (4) elements, namely:

1. Focus (primary goal to be achieved)

The main goal in which a solution is to be sought in this study is to increase the competency of industrial labor of vocational high schools graduates where the competency of current vocational high school graduates has not matched the needs of the business world and the industrial world, causing unemployment due to not be filled with the required competencies.

2. The leading factor affecting the success in achieving the goals

There are several factors becoming a reference for concrete steps to be taken for fundamental improvements. There are three (3) factors affecting the competency of the labor, in which hither is the primary goal. These three factors are:

a. Competency for Infrastructure

Competency for infrastructure is fundamental in developing the competency of vocational high school graduates. The current condition of competency for infrastructure of vocational high school is the primary goal needing to be improved. To accommodate the demand for skills competencies needed by the industry, the

improvement of competency for infrastructure must implement a demand driven approach with the aim that the industry can carry out an active role in developing the competencies of vocational high school graduates. The intended competency for infrastructure is competency standards including SKKNI, curriculum, availability of productive teachers, competencies of the teacher, and vocational facilities and infrastructure. It is in line with the research conducted by Perdana (2019)^[17], stating that to match between the competency of vocations high school graduates and the needs of industry, the improvement to school facilities and infrastructure and the competence of students need to be carried out. Obstacles encountered at this time occur because the renewal of SKKNI has been fully uncarried out. It will result in not linking and matching between the skill competencies and the needs of the industry which has an impact on the learning curriculum that has not adapted the needs of the industry. The number and competency of teaching staff has not met the needs. In addition, there has been no increase of the competence of teaching staff that is in accordance with the competencies needed by the industry, and the minimum practicum equipment has been unfulfilled. The stages of implementing the revitalization of competency for infrastructure can be carried out by preparing the SKKNI which can be obtained from the Specific Work Competency Standards (SKKK; *Standar Kompetensi Kerja Khusus*) in each industry. After the formation of the final competency standards, steps can be undertaken to adjust the competency skills needed by the industry to be implemented in vocational high schools.

b. Competency-based Education

Competency-based Education is implemented, so that the implementation of education in vocational high schools is right on target in accordance with the skill competencies needed by the industry. In its implementation, vocational high school

education will be guided by a curriculum that has been aligned with industrial needs. So far, the learning system with the old curriculum in vocational high schools is not yet suitable for learning materials. To a great extent, theory lessons are more dominant in terms of learning patterns, which is 70% of theory and only 30% of practice. It will make it incompatible with the target to be achieved, which is the absorption of ready-to-work labor, because vocational high school graduates are unfamiliar with the procedures for using equipment because of the lack of practical learning. With the recent learning system, curriculum alignment has been carried out in which the learning material has matched the industry's needs. Moreover, practical learning time is more dominant, 70% of practice and 30% of theory. In the implementation of practical learning, vocational high schools also carry out field practices for students and the use of experts from industry, so that vocational high school students understand better how the culture and the implementation of industrial activities are. It aims at improving the competency of vocational high school graduates.

c. The Needs of Industry

The current provision of skilled labor is still supply driven. The mindset of a vocational high school is considered successful if it produces many graduates. This mindset will have an impact on the increasing unemployment rate in Indonesia. This current mindset of Vocational high school graduates makes the graduates jobless because their skill competencies are unneeded by industry. The determination of skill competencies must be based on the needs of industry. According to Perdana (2019)^[17], to establish a balance in the market of the labor, the competency of vocational high schools graduates needs to be adjusted to the needs of the industry. The industry becoming the destination of vocational high school graduates has the required skill competency characteristics. The involvement of industry in the

development of competency of vocational high school graduates is extremely significant. The needs of industry for competence must be accommodated by providing ready-to-work labor. To achieve the target of vocational high school graduates to be absorbed by the industry, one way to do this is to adjust skill competencies, so that there is a match between the supply of vocational high school graduate and the needs of the industry.

3. Actor (playing a role in achieving the goals)

The actor acts as an agent to carry out the function of the factor function on which the target can be achieved. Each actor has their respective roles related to one another. The actors are as follows:

a. Vocational High School (VHS)

VHS is an actor producing labor to fulfill the needs of the business and the industrial world. VHS carries out the functions as educators carrying out the teaching and learning process for students.

b. Central Government

The central government is an actor carrying out the function of drafting policies and implementing presidential directives through Presidential Decree No. 18 of 2016 concerning the revitalization of Vocational High School. In addition, the central government also carries out the task of assisting in the development of practicum facilities and infrastructure. Through Ministry of Industry, the central government increases the role of industry in the development of Vocational High Schools so as to facilitate the implementation of activities like adjusting skills competencies, aligning curriculum and implementing education.

c. Regional Government

Regional governments have the task of drafting policies in implementing learning activities at Vocational High School.

d. Industry

The role of industry is exceptionally substantial in developing the competency of

vocational high school graduates. Apart from being actors in the development of industrial vocational high schools, they are also users of vocational high school graduates. The contribution of industry significantly affects the results of the targets that have been set.

4. Objective (playing a role in achieving goals)

The objective is what to be achieved through the strategy to be implemented. The objective of each actor needs to be considered. According to all respondents, there are several main objectives needing to be considered in formulating a strategy for developing the competency of industrial labor of vocational high school graduates, namely:

a. Development of Competency Standard

Competency Standard is as a reference in implementing competency-based education and training as well as implementing competency tests (competency certification). The Indonesian national work competency standard (SKKNI) is a formulation for the implementation of education and training activities to improve work ability including aspects of knowledge, skills and expertise as well as work attitudes in accordance with the implementation of work. The development of SKKNI must involve allied industries to be able to identify education and training needs, so that the results are in accordance with the needs of the industry itself.

b. Improvement of Vocational High School Facilities and Infrastructure

Vocational high school facilities and infrastructure are one of the competency infrastructures of vocational high schools. The level of student ability can be affected by the feasibility of a learning system utilizing practical equipment. Basic practicum facilities and infrastructure must be owned by vocational high school to carry out what is planned in the curriculum. Basic practicum equipment will be needed

because the percentage of practicum learning is 70%.

c. Adjustment of Expertise Competency

After determining the SKKNI as a learning and training guideline, it is possible to adjust the skill competency at vocational high schools according to the needs of industry, so that the labor from vocational high school graduates can be absorbed. To cause schools being able to focus on improving the competence of their graduates, the government recommends one school only has a few skill sets. Skills competency limitations also affect the costs incurred for the procurement of practicum equipment.

d. The increase of the industry's role in vocational education

Industry has an extremely dominant role in developing the competency of the labor from vocational high school graduates. It is starting from the formulation of SKKNI, adjusting skill competencies, aligning curriculum and their willingness to implement student field work practices and teacher apprenticeships in related industries. It is in accordance with the research conducted by Soeprijanto (2010)^[18] stating that assistance carried out by the industry is a form of industry support for vocational training for vocational high school students. Hence, the vocational high school graduates acquire competencies according to their field of expertise.

5. Alternative strategies for achieving the goals

To achieve the objectives in developing the competency of industrial labor, according to experts, there are several alternative strategies needing to be considered, namely:

a. Alignment of the curriculum, syllabus and modules according to the needs of the industry

To prepare vocational high school graduates being able to be absorbed by the business and the industrial world, the curriculum implemented by vocational high school

must have a link and match with the needs of the industry. Alignment of the curriculum must involve experts from the industry, so that what the industry demands can be fulfilled.

b. Fulfilling the needs of productive teachers and utilizing silver experts

Currently, the number of productive teachers is only 22% of the total requirement of 60%. It must be fulfilled immediately to carry out learning activities both theory and practice referring to a curriculum that has been aligned with the needs of the industry.

c. Fulfilling the needs of practicum infrastructure

The current condition of vocational high school facilities and infrastructure typically does not meet the minimum equipment standards for practicum. It, of course, will exert a significant effect on the skills of graduates because there are no practicum activities with predetermined standards. The facilities and infrastructure must be owned by vocational high school because it is a fundamental and necessary thing affecting the quality of Indonesian human resources, especially vocational high school graduates.

d. Organizing industrial work practice (*prakerin; praktek kerja industri*) for students and industrial internships for teachers

One of the things improving one's ability is by direct learning. To find out how the equipment works and how the industry utilizes technology and systems, It is required to do work practice or internships in industry. In the link and match program, students are scheduled to do industrial work practice (*prakerin; praktekkerjaindustri*) to increase knowledge in the industrial world and to find out how the attitude is when working in the industrial world. Industrial internships are also required for teaching staff of vocational high schools to add insight and knowledge about systems in the industrial world, so that teaching staff can find out the procedures for industrial systems both using equipment, upgrading

technology, supply chain and other problems in the system.

e. Providing incentives to industries carrying out coaching and development of vocational high schools

To stimulate the industry to play an active role in the coaching and development of vocational high schools, the government has launched incentives for the involved industries in the form of a tax cut of 200% of the total costs incurred by the industry for the coaching and development. The role of industry is very much needed in the coaching and development of vocational high schools such as in alignment of the curriculum, adjustment of skill

competencies, students' industrial work practice and industrial apprenticeships.

f. Student Competency Certification

To increase competitiveness for the labor from vocational high school graduates, apart from an academic certificate, students are also required to have a competency certificate regarding their expertise. Hence, it will be one of the attractions for the industry to be able to recruit workers because they have the required skills.

Hierarchy of decision making

From the identification of problems in this study, a hierarchy can be arranged in decision making. The hierarchical form can be seen in Figure 1.

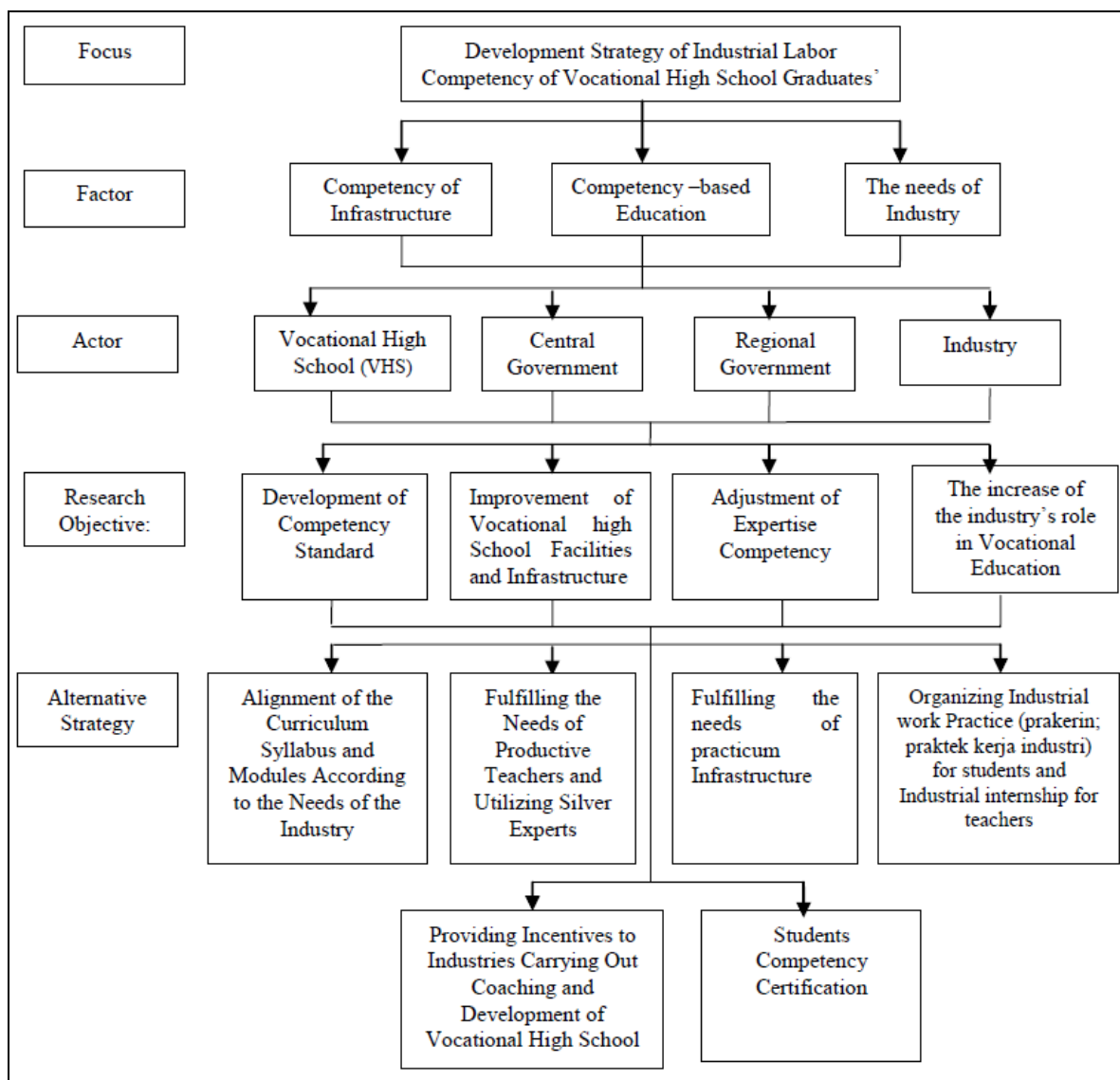


Figure 1: Hierarchy of decision making

Expert opinion analysis

Expert opinion analysis is the output of weighting between elements in one level or at the level above it.

In this study, the weighting used a combination of 4 experts.

Factor priority

Factor element analysis is used to determine the priority level of each factor element to the focus of this study.

Table 1: weight and priority of processing results between factor elements

Factor	weight	Priority
Competency for Infrastructure	0.426	1
Competency-based Education	0.308	2
The Needs of Industry	0.266	3

From the results of processed data as in table 8, the competency for infrastructure factor is the first priority with a weight of 0.426. This factor is the most fundamental factor for improving the quality of outcomes of vocational high school graduates.

Competency-based education with a weight of 0.308 is the second priority. This factor is the implementation of education in vocational high schools. By referring to the competency for infrastructure that has been adjusted to the needs of the industry, this factor will run well and will have an impact on the increase of the competency of industrial workers.

The needs of the Industry are the third priority with a weight of 0.266. The large number of unemployed among

vocational high school graduates is due to the lack of skill competency needed by the industry. To be able to meet the industry's demand for expertise competencies, vocational high school must carry out a link and match program with industry.

Actor priority

The actor element analysis is used to determine the priority level of each actor element to achieve the focus of this research.

Table 2: Actors playing a role in developing the competency of industrial labor graduates from vocational high schools

Actor	Weight	Priority
Vocational High School (VHS)	0.283	1
Industry	0.248	2
Regional Government	0.238	3
Central Government	0.229	4

From the combined analysis of experts for the fulfillment of the fundamental factors including competency for infrastructure, competency-based education and the needs of industry, the highest weight is vocational high school with a weight of 0.283. The second place is industry with a weight of 0.248, followed by local governments with a weight of 0.238 and central government with a weight of 0.229.

Priority goals

The objective element analysis is used to determine the level of priority for each element of the goal in achieving focus.

Table 3: Priority goals in developing the competency of industrial labor graduates of vocational high schools

Research Objective:	Weight	Priority
Development of Competency Standard	0.294	1
Improvement of Vocational High School Facilities and Infrastructure	0.273	2
Adjustment of Expertise Competency	0.248	3
The increase of the industry's role in vocational education	0.185	4

The development of competency standards is the first priority with a weight of 0.294. The development of competency standards is carried out by updating the SKKNI prepared by stakeholders, so that the needs of industry for expertise competencies have not been met. By making competency standards as a priority for the improvement, it will have an impact on the fulfillment the needs of industry for skill competency.

The improvement of facilities and infrastructure for vocational high school is in the second place with a weight of 0.273. Currently, the conditions of vocational high school facilities and infrastructure are still far from the minimum standard of equipment feasibility. According to the expert, Vocational High Schools core producer producing ready-to-work labors will have difficulty if they do not have

minimum standard equipment. It is because there is no place for students to practice. Especially, with the new learning scheme, which is with 70% of practical learning, the provision of minimum standard equipment is the most priority to do.

The third place is the adjustment of skill competency with a weight of 0.248. With changing equipment following technological developments, the needs of industry for skills competencies will change. It is an obstacle in fulfilling the needs of industry in meeting skill competencies. Skills competency produced by vocational high school must link and match with the needs of industry. Vocational high school must cooperate with industry to be able to meet industry demand for skill competencies.

The last order is an increase in the role of industry in vocational education with a weight of 0.185. The involvement of industry in the revitalization of vocational high school will be a determinant in the success of increasing the labor competency of vocational high school graduates. Industry can play a role in the preparation of SKKNI, alignment of the curriculum, provision of apprenticeship facilities for students and industrial apprenticeships for teachers and equipment support for vocational high school.

Alternative strategies

The alternative strategy analysis is used to determine the level of priority for each element in achieving focus.

Table 4: priority strategies in the development of industrial labor competency of vocational high school graduates

Alternative Strategy	Weight	Priority
Alignment of the curriculum, syllabus and modules according to the needs of the industry	0.261	1
Fulfilling the needs of productive teachers and utilizing silver experts	0.201	3
Fulfilling the needs of practicum infrastructure	0.247	2
Organizing industrial work practice (<i>prakerin; praktekerjaindustri</i>) for students and industrial internships for teachers	0.108	5
Providing incentives to industries carrying out coaching and development of vocational high schools	0.117	4
Student Competency Certification	0.066	6

The priorities successively are alignment of the curriculum, syllabus and modules according to industry needs with a weight of 0.261, fulfillment of practical infrastructure facilities with a weight of 0.247, fulfillment of productive teacher needs and use of silver experts with a weight of 0.201, providing incentives to industries carrying out guidance and development of vocational high schools with a weight of 0.117, organizing internships for students and industrial apprenticeships for teachers with a weight of 0.108 and certification of student competencies with a weight of 0.066.

Alignment of the curriculum, syllabus and modules according to the needs of industry is carried out to meet the competencies needed by the industry, so that the learning materials taught in vocational high school are link and match with the needs of industry. This strategy must be implemented for the first time, so

that education in Indonesia has an appropriate learning reference. Hence, vocational high school graduates become ready-to-work labors in the industrial world.

Basically, most vocational high schools in Indonesia have not met the minimum equipment standards. Fulfillment of the needs of practicum infrastructure is the second priority that must be implemented. Fulfillment of practicum facilities and infrastructure must be guided by a curriculum that has been aligned with the needs of industry. This strategy is implemented, so that students can carry out practicum learning according to the needs of industry. By implementing practicum learning according to standards, it will increase the competency of vocational high school graduates

Fulfillment of the needs of productive teachers and the use of silver experts are prioritized to meet the needs of vocational high schools for competent

teaching staff in accordance with the needs of industry. The current condition, the number of productive teachers is only 22% of the 60% requirement. Fulfillment of the needs of productive teachers is done, so that vocational high schools can carry out the learning process in vocational high schools in accordance with curriculum guidelines that have been aligned with the needs of industry. In addition, the silver expert program will have a positive impact on the competency of vocational high school graduates. By using the silver expert program, it will assist vocational high schools in facilitating the need for the experienced teaching staff in industrial practice. The experience of a silver expert while working in the industrial world will certainly be given to students both in carrying out work using equipment and the work culture of the industrial world, so that students really know how the process of the world of work in the industry. This experience will certainly help students to understand the conditions of the industrial world where the graduates work. Fulfillment of silver expert is carried out by utilizing experts in the industrial world who have entered their retirement period. The use of this program is very beneficial for both the government and industry. The government benefits from having educators who understand the systems in the industrial world without spending a lot of money and taking a long time to increase the competence of teaching staff. Industry as a user of vocational high school graduates will get a workforce who has the competency as needed because it is educated by experienced experts in their fields.

To increase the role of industry in the framework of revitalizing vocational high schools, it can be done by providing incentives to industries carrying out coaching and development of vocational high schools. The role of industry is indispensable, so that the education pattern in Indonesia leads to labor market demand from industry.

Organizing industrial work practice for students is carried out to improve the competency for students, and industrial apprenticeship for teachers increases insight and knowledge for teachers as educators who are updated about the industry.

Student competency certification is needed by issuing competency certificates as a reference for skills competency other than academic certificate. Competency certification is issued by the National Agency for Professional Certification. With this certification, the industry as an employer is easily in the recruitment process.

CONCLUSION

1. The existing skill competencies in vocational high schools must be relevant to industry needs. The determination of skill competencies at vocational high schools can be obtained from several fields of expertise needed by industry and is divided into several expertise programs. From this expertise program, it can be determined what skill competencies are needed by the industry. Besides, determining the skill competency required by a particular industry must be guided by the Indonesian National Competency Standards (*SKKNI; Standard Kompetensi Kerja Nasional Indonesia*) having been prepared by experts from the industry itself and other stakeholders. The competency of expertise that the industrial world wants to achieve includes aspects of knowledge, skills and Attitude, in which these three (3) aspects have been formulated through the output of the SKKNI.
2. In developing the competency of industrial labor of vocational high school graduates, there are three (3) leading factors becoming determinants for the improvements and references in their implementation. The factors, competency for infrastructure, competency-based education and the

needs of industry for competency skills, can affect success in its implementation. The competency for infrastructure that must be developed includes SKKNI, curriculum, learning and practicum facilities and infrastructure as well as competent educators. Competency-based education includes the implementation of education in vocational high schools and industrial work practices that can help student competencies, so that students understand how the culture of the industrial world works. The needs of industry for expertise competencies always changes at a certain time because the industry will use equipment to follow the direction of technological developments with the aim of efficiency.

3. Based on the weighted results of the experts using the AHP method, the first priority for the improvement is the competency for infrastructure. The actor that has the greatest effect is vocational high school as a place for implementing competency-based education producing labor. Alternative strategies that are a priority in developing the competency of industrial labor of vocational high schools graduates are aligning of the curriculum, syllabus and modules according to industry needs, meeting the needs for practicum infrastructure, fulfilling the needs of productive teachers and utilizing silver experts, providing incentives to industries carrying out coaching and development of vocational high school, organizing industrial work practice for students and industrial apprenticeship for teachers, and student competency certification.

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