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SMK Partnership with Industry to Improve Graduate Quality in Facing ASEAN Economic Community

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***Abstract*—The cooperation between vocational high school (Sekolah Menengah Kejuruan/SMK) and the industry is the realization of the implementation of dual system education in Indonesia. SMK cooperating with the industry will provide enormous benefits for students, schools, industry, and parents/guardians of learners. For learners, they will have good knowledge and skills, broad insight, and confidence that after graduation they are able to work and compete in the workfield. For schools, the education process will be more efficient and can reduce the cost of education. As for the industry, it will be easy to get skilled labors thus saving on recruitment costs, and it is a concern for the industry to improve education. For parents/guardians, SMK cooperating with the industry will give confidence to SMK that their students will get the assurance to be able to work according to their field of expertise after they have finished their education in the vocational school.**

Keywords—quality, SMK, cooperation, industry

I. INTRODUCTION

The existence of Indonesia will be more valued in the eyes of the world if this nation is able to give a big change. The change of a nation is determined by the quality of education. Education has an important role in achieving national development goals. The ongoing development in this ongoing globalization era has brought many changes in all fields. The needs and challenges of the complex world of work demand are always increasing. Humans as the sources of workforce must be able to compete by having professional competence. Education is expected to yield a generation of strong character, skilled, creative, innovative, imaginative, sensitive to local wisdom and technopreneurship.

One of the school institutions that prepares its students to be able to work directly after graduation is Vocational High School (SMK) [1]. The existence of vocational schools is to prepare to produce skilled workers who are ready to work with various competencies and able to follow the development of science and technology.

The role of SMK in supporting the national economy is very significant. SMK is the foundation to prepare a reliable workforce in filling the national economic development, especially in facing global and regional challenges, such as the Asian economic community (AES). The existence of SMK to prepare middle-level workers becomes a very strategic and fundamental action in facing Indonesia's economic development now and in the future [2].

Vocational High School (SMK) is mandated by the law to prepare human resources who are ready to enter the world of work and become productive labor. SMK graduates are ideal ready-made labor, in the sense of being able to work directly in the business world and industry [3-5]. Current SMK problems relate to equipment limitations, low practical costs, and learning environments that are not similar to the workplace. Such conditions can lead to the unpreparedness of graduates in entering the workforce [6]. The unpreparedness of SMK graduates to work has a domino effect on the users which are the industry because the industry must organize education in the industry to prepare its workforce. In other words, the industry must allocate extra costs beyond production costs.

In fact, the industry and the school have their own limitations in shaping and getting ready-to-use workers. The school itself has limitations in the financing and provision of the learning environment, while the industry has limited educational resources to form the required workforce [7-8]. Cooperation between vocational and industry education is very important because partnerships must accommodate mutual concerns in which each party has different needs and interests. It can be said that this partnership is a symbiosis of mutualism, that vocational education requires industry, and industry requires vocational schools to sustain their own survival [9].

Therefore, to get qualified graduates of SMK and able to face the competition of the ASEAN Economic Community (AEC), both parties should cooperate in an attempt to improve the implementation of education in vocational schools. Vocational high schools and Industry should at least prepare joint educational programs on what SMK can do and what industry can do to improve the quality of SMK. Thus, the link and match program proclaimed by the Directorate of PSMK can be realized.

In developed countries, the role of industry is demonstrated in the form of program cooperation, and financial support for research and scholarship. Even in

some countries, these roles of the industry have become an obligation because there have been laws that regulate it. At the very least, businesses and industries that have actually established cooperation with schools are given incentives by providing tax breaks. With this collaboration, it has been proven that graduates can be well absorbed in the job market.

II. Result and Discussion

A) Improving Quality of SMK Education Through Cooperation with Industry in Dealing with AEC

The principle of industrial cooperation between schools and the world of work ultimately aims to accelerate the adjustment time for graduates of Vocational Schools to enter the world of work which will ultimately improve the quality of vocational high schools [3,8]. Implementation of school collaboration with the world of work is a strategy in overcoming the limitations of resources that exist in schools in order to develop the schools. In developing the cooperation between schools and the industry, schools should behave that they have more needs. With this attitude, schools should always take the initiative to approach the industry [2]. Schools also need to think about an offer that can really help the industry. The peak of the implementation of cooperation between schools and industry can institutionalize into a partnership institution.

Figure 1 explains the efforts to improve the quality of graduates in vocational schools through SMK cooperation with the industry. Improving the quality of education that can be undertaken by vocational schools through cooperation include: curriculum synchronization, industrial work practices, industrial classes, teacher apprenticeship, industrial exhibition outcomes, and labor recruitment, as illustrated below.

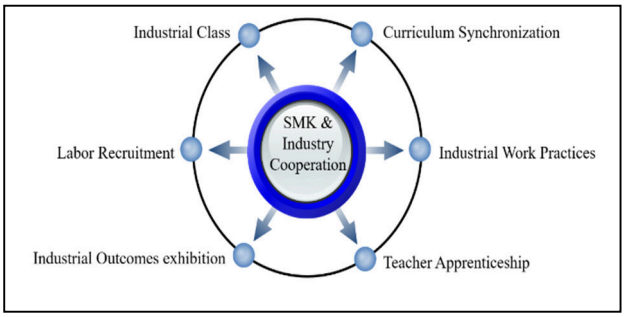

Fig. 1. Various Types of Vocational High School Cooperation with The Industry

B) Curriculum Synchronization

The education and training of the dual system developed by the German government is much exemplified by the countries in Europe. While the United States itself is the first to develop competency-based education and training. In order to improve Competency Based Education Training (CBET), it is necessary to pay attention to the development of the dual system [7].

Competence-based education and training (CBET) also receive attention from developing countries in Asia. In the 1980s some of the countries focused their efforts on industrialization and entered the world market. This has led them to direct the vocational education system to CBET which is based on studies proven to increase participation to support the success of industrialization and the economy. In Indonesia, the idea of using PPBK grew during a bilateral conference between Indonesia and Australia in Jakarta in June 1994.

Can the momentum be considered the beginning of the idea of using CBET in the education system in Indonesia? The United States as a CBET innovator seems to be considering the success of the dual system education (DSE) as a source of inspiration to perfect CBET while Indonesia since 1994 has been implementing DSE in the level of technology and vocational secondary education. For vocational secondary education, the application of a competency-based curriculum approach (CBC) can be regarded as an affirmation that the SMK curriculum is based on the CBET concept, which is oriented towards the competence standards applicable in the industry [4,7].

In order to implement the competency-based education and training curriculum in Vocational High School (SMK), the curriculum in schools should be synchronized with the needs and development of the industry. To do so, SMK must do cooperation with the industry to jointly make the synchronization of the curriculum so that what is taught in SMK is equal to what is needed by the industry, resulting in the link and match.

C) Industrial work practices

SMK is an integral part of the industrial society because they need each other and depend on each other. In America, according to a survey in one school, there is 85% of the industry that offers an apprenticeship to students [10]. By making students apprentices daily, if they succeed, they will have a longer apprentice in a certain company. The collaboration between schools and the industry according to the OECD is an effective and very robust method of preparing students for the world of work. Similarly, the results of education in the form of graduates will be the hope and desires of the industrial society.

Industrial work practices are basically useful for: (1) adding and developing learners' potential of knowledge for learners; (2) training learners' skills; (3) creating responsible and mental attitude, discipline, good ethics and being able to socialize with work environment; and (4) increasing learners' creativity in order to be able to develop their talent, developing entrepreneurial attitude and work happily [7,11]. The benefits of industrial work practices for learners are skills enhancement, work habit experience, career guidance information, and expanding employment insight [4][8].

D) Teacher Apprenticeship

A vocational teacher is required to have good knowledge, attitude, and skills and must be active in

seeking experience, knowledge, and skills. The implementation of an apprenticeship teacher becomes one way to gain that knowledge. Gradual learning done by teachers does not have to be pursued through formal education, but it can be done through step-by-step learning through a more skilled person or through an internship in industry.

The teacher apprenticeship can make the competence relevance of teachers' expertise, especially productive teachers with the advancement of science and technology that exist in the world of work [1]. If the apprenticeship is applied in the world of work, then vocational school teachers can observe the real competencies needed by the world of work.

Apprenticeship is also equally necessary to improve the competence of teachers themselves so that they can teach their students better. This is because the graduates of SMK are expected to be competent, professionals in their field and able to compete with other candidates of school graduates. One indicator of SMK achievement is measured by how many graduates can work in the world of work or can provide employment for other communities. When a teacher performs an apprenticeship, whether in the industry or with fellow teachers, he or she can observe the correct work procedures, as well as the skills and knowledge required. Teachers do not guess anymore how to achieve the competencies that the learners need. Once the apprenticeship is finished, those teachers will be able to fix the problem when it occurs in doing his job.

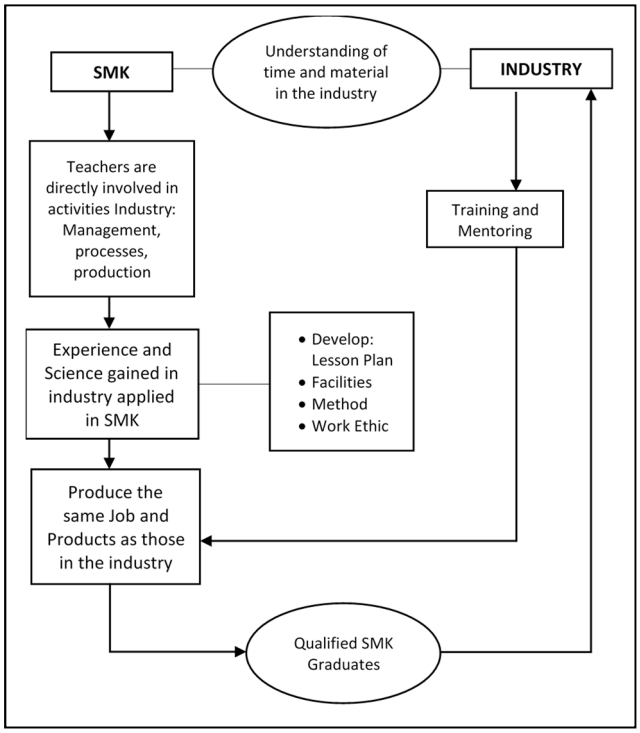

Fig. 2. Teacher Apprenticeship Flowchart

The role of industry professionals in this apprenticeship program is as a mentor and teacher instructor to deepen industrial work culture. The efficiency and effectiveness of this teacher apprentice are also perceived by the industry because for the industry, there is no need to organize more training centers to get a skilled worker. These skilled workers will be generated by teachers who have been apprentices in the industry.

An industry apprenticeship is the best way to learn professional attitudes and interpersonal skills. This apprenticeship cooperation is conducted as an attempt to develop the skills of SMK teachers in the form of real industrial work that later can be transferred to their students. This apprentice teacher program is also expected to benefit the industry by utilizing innovations generated by teachers, resulting in academic transfers from school to industry.

E) Industrial Class

The industrial education class model in the Vocational School (SMK) curriculum is structured jointly between the school and the industry. The curriculum is structured using two main approaches, namely "Competency-Based Curriculum Development Approach" and "Broad-Based Curriculum Development Approach" [4].

Conceptually, both approaches have a fundamental difference. The competency-based approach focuses on the consideration that the curriculum should contain learning materials that equip the graduates to do the work tasks that exist in the world of work. Therefore, it should provide the competencies (especially skills) that are needed in employment [4,8]. The broad-based approach, on the other hand, prioritizes the provision of grants so that graduates can develop sustainably, so the curriculum should contain capabilities (especially intellectual and emotional) that enable graduates to stay up-to-date about science and technology continuously.

The industry-class education curriculum is prepared by the industry as per industry requirement. While the practice facilities in the form of equipment, reference books supporting competency skills are prepared jointly by the industry and vocational school. The facilities in the form of a practice building are usually prepared by the school, while the learning management is arranged together between the school and the industry partner.

In industrial class education, learning takes place both in school and in industry. Basic theories and practices are given in schools whereas field practices are conducted in the industry. To be able to teach in industrial class, the productive teacher must first take part in industrial training by industry partners to have industry-determined competencies [12]. The teaching-learning processes in schools can be done not only by teachers who already have required competency but also by instructors from the industry as assistants who help teachers in schools. The teaching-learning processes in the industry are in the form of apprenticeship guided by instructors from the industry. The competency test in the industrial class is fully implemented by the industry and the certificate of expertise is issued by the industry as a partner institution.

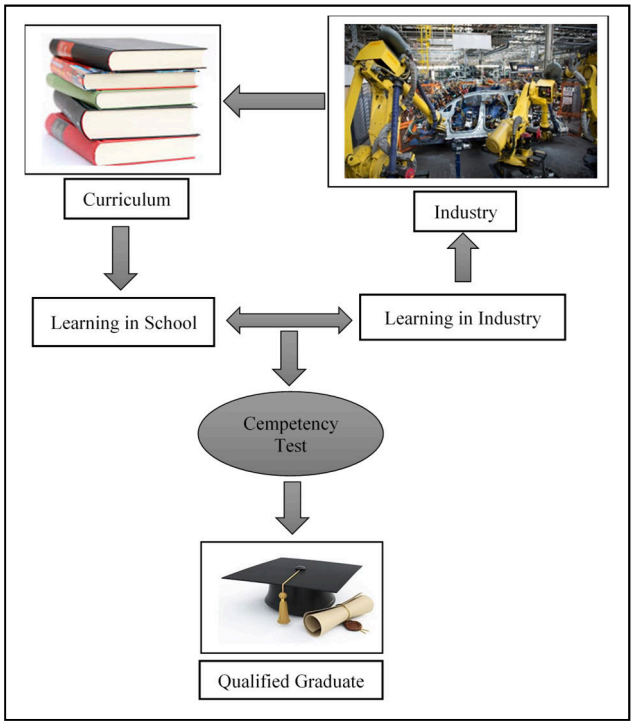

Fig. 3. Industrial Class Implementation

F) Labor Recruitment

Vocational education is primarily a means for students to get a job [3]. Graduates Distribution Program is the tip of the success of the entire program in vocational education, for that will be a benchmark of success in the final process of learning activities. With the expectation that all outputs from vocational schools become outcomes, one of the initiated efforts is the cooperation with the industry partners in the process of graduate recruitment [10]. This should be done with the school to initiate in conveying the data and competence of the graduates and ensuring that the graduates to be placed to industry have sufficient competence and by the industry standard requirements, such as knowledge, skills, and attitude.

The distribution process on vocational graduates professionally handled by technical and operational units called Special Labor Market (SLM). This service unit in every SMK is under the auspices of the vice principal of public relations and industry. SLM has an important role because it must provide excellent service in providing information and communication to the graduates to get employed based on their expertise.

Human resource recruitment activities in schools are conducted by the industry with various stages of selection/screening process. The school should prepare the facilities and infrastructure, as one form of service to the business world or industries. In the implementation of the development of human resources, it is necessary to consider various factors, both within the organization itself and outside the organization (internal and external). Factors influencing the relationship between SMK and business world or industry, namely: (1) Quality of Teachers, (2) Labor Competence, (3) Infrastructure, (4) Cooperation Relationship of SMK with business world or industries, (5) Regional Potential (6) Science and Technology Capabilities, and (7) Government Policy.

G) Industrial Outcomes Exhibition

To introduce industrial products to the community and introduce various jobs in the industry, the industry needs to exhibit or at least display their products at a particular showroom, or attend exhibitions organized by the Chamber of Commerce and Industry [5].

By the exhibition of this industry, SMK must be responsive to invite its students to see and introduce the world of the business/industry so that the students have knowledge and understanding of industrial products and how the production process to produce goods/services that can be utilized by the public. By involving the students in this exhibition activity, they will be motivated to work in the industry and cultivate the passion and entrepreneurial spirit.

Along with industrial exhibitions carried out by the Chamber of Commerce and Industry or the Department of Commerce and Industry, which usually take part on an annual basis in various regions, SMK should be able to participate in the exhibitions to introduce what has been done by SMK in educating the future skilled workforce in the industry. This joint activity will establish a harmonious relationship between SMK and the industry.

III. Conclusions

A) Conclusion

Cooperation between SMK and industry will provide enormous benefits for students, schools, industry, and parents/guardians. Students will get good knowledge and skills, broad insight, and confidence, so that after graduation they will be able to work in the industry. For schools, the process of education will become more efficient. For the industry, it will be easier to get skilled labor to save the cost of recruitment. For the parents, SMK and industry cooperation will give confidence to SMK that their children will get a work guarantee after they graduate from vocational high schools.

B) Suggestion

For SMK, to improve the quality of graduates in order to be better and gain trust from industry and society, it is expected that SMK can cooperate with industry in the implementation of education. The cooperation is expected to start from planning, implementation, evaluation, and certification to the placement of graduates in getting a job.

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