

Study on The Implementation of Industrial Class Based on School with Electric's Industry Cooperation of PJB Class Students (Jawa-Bali Power Generation) in SMK PGRI 3 Malang

Tri Dianita Rully¹⁾

*Electrical Engineering, Faculty of
Engineering, State University of
Malang, Indonesian*
diannitarully@gmail.com

Yuni Rahmawati²⁾

*Electrical Engineering, Faculty of
Engineering, State University of
Malang, Indonesian*

Hari Putranto³⁾

*Electrical Engineering, Faculty of
Engineering, State University of
Malang, Indonesian*

Abstract- Study on The Implementation of Industrial Class based on School with Electric's Industry Cooperation of PJB Class Students (Jawa-Bali Power Generation) in SMK PGRI 3 Malang. The Vocational High School (VHS) as the secondary education institute is expected to prepare the competent graduates accordance with the industry need. The Vocational High School Curriculum needs to be match with the industry need in order to prepare the graduates as the competent employee of VHS level. The industrial class as a cooperation program between the school and the industry is aimed to implement the education process which based on the industrial learning culture. The research method that used in this research was qualitative research method which based on study case. Data collection was done by interview, observation, and documentation with the validity of data was done by using triangulation method. The result of this research showed that the implementation process of PJB industrial class refer to the curriculum implementation that synchronized between the curriculum of 2013 with PJB's industrial competency need. The cooperation program of PJB industry class produces competence engineering graduate and improve the quality also the relevance of SMK's education that based on work field requirement. The cooperation between school and industry in the implementation program is important to be synergized in order to achieve optimal goals.

Keywords- Industrial Class, The Cooperation, PJB Class

I. INTRODUCTION

The Vocational Education expected to prepare the competent graduates and ready-to-work human resources [1]. This section showed that SMK is expected to prepare the competent graduates match with their skill. The competency skill is usefull for graduates to be accepted in work field.

Data from the central statistical in Indonesia on February 2017 showed that the highest unemployment rate compared with other education exist in vocational education with 9,27% [2]. One of the factors of low absorption of graduates in work field is the relevance between the work field needs with the quality of the graduates. SMK's graduates not only equipped with skills but also support by the quality. The cooperation between school and industry or the government important to develop to direct the alumnus accepted in working field. The vocational education is expanding and needs to be more tangible cooperation between schools and industrial companies to map students in industrial practice implementation and prospect the graduates [3].

Based on the observations, SMK PGRI 3 Malang has industrial class which one is PJB Class (Jawa-Bali Power Generation). PJB Class is a cooperation program between SMK PGRI 3 Malang and PT PJB. This class is int the form of education and training organized by school and industry. Based on previous research by Santoso (2016) stated that the industrial class program as a company class was formed and managed specifically by school and industry to optimize the education quality because the industry is directly involved in the process of classroom learning activities [4]. Now there are still many vocational schools that have not implemented industrial classes. This is because information has not yet been explored about how industrial classes is carried out, starting from the preparation stage to the output produced.

Based on the description above it is interesting to investigate the implementation of Industrial Class of PJB Class students in SMK PGRI 3 Malang, by considering of less vocational schools which have superiority class like industrial class that the alumnus can direct accepted in working field. This research study is expected to find findings the preparations, process, and the final results of the implementation of industrial class program in PJB

Class. This is to describe about the implementation of industrial class for school that have not been applied industrial class. The result also expected to be an evaluation material for students, schools and companies from the programs that have been implemented to implement better programs in the future.

II. METHOD

The research method that used in this research was qualitative research method which based on study case. The instrument of this research was the researcher herself. The data source was taken from the informant who have capability and compatibility with the case and the data source also uses picture as the documentation, and seconder document. The informants in this research included: (1) the head of electrical engineering, (2) the head of the electric workshop (PJB Industrial Class teacher), and (3) staff of industrial practice and the field of industrial cooperation. The data collection was done by interview, observation, and documentation. The data analysis included reduction data, display data, and conclude the data. The validity of data was done by using triangulation method.

III. THE RESULT AND DISCUSSIONS

The Preparation of Industrial Class Implementation in terms of School Collaboration with Electricity Industry in PJB Class Students in SMK PGRI 3 Malang

Industrial class of PJB's program made by industry corporation needs of competent alumnus in engineering department. SMK need to establish cooperation with industry to direct accepted alumnus in working field according the competence. PJB industrial class is the cooperation program between SMK PGRI 3 Malang with PT PJB in order to improve the quality of education and competence according industry needs. This cooperation that established both of sides is contained in Memorandum of Understanding (MoU).

Preparation is important as a preliminary effort before implementing the program. The preparation of industrial class of PJB as effort to implemented optimally. The main foundation of industrial class is the industry electricity need. SMK need to establish cooperation with industry to direct accepted alumnus in working field according the competence. This statement reinforced by presidential instruction of the Republic Indonesia (INPRES RI) number 9 in 2016 about revitalization of SMK in order to improve quality and competitiveness of human resources in Indonesia [5]. This is related to the involvement of BUMN to support the implementation of Vocational Education.

Forms of cooperation that exist between SMK PGRI 3 Malang and PT PJB include: (1) curriculum synchronization, (2) cooperation of industry practice, (3) certification competence test, (4) recruitment, (5) softskill training, (6) apprenticeship teacher and student training, and (7) industrial class. The cooperation established both

of sides contained in Memorandum of Understanding (MoU) that signed each of the leaders. The planning of industrial class education model together with industry partners stated in cooperation agreement of both parties [6].

First step to forme the industrial of PJB class is curriculum synchronization. The objective to create Link and Match or fit between the knowledge in the school and company needs. This result is based on with the regulations of the minister of industry in Indonesia number 3 year 2017 about guideliness and development of SMK based competencies that link and match with industry, section of lesson system 3 mentions SMK expertise program tailored to industry's need [7].

Second, competent teacher to improve the quality learning. In the regulations of the minister of industry in Indonesia number 3 in 2017 section 6 mentions that industry internship aims to improve teacher's competency [7]. Solehan (in Santoso 2016) give a statement that to improve the quality of education should be pursued to the maximum start with teacher training [4].

The students selection who enter PJB Class is conducted by selection test. The last is provide supporting tool and infrastructure. Infrastructure becomes one of the factors that affect the learning outcomes of students [8].

The Implementation Process of Industrial Class in terms of The Cooperation between School with Department of Engineering Industry of Students in PJB Class (Jawa-Bali Power Generation) of SMK PGRI 3 Malang.

The implementation process of PJB industrial class refer to the curriculum implementation. The curriculum was arranged by school, industry, and the other parties who interested. The implementatif curriculum is the result of curriculum K2013 and PT PJB's curriculum synchronization. Competence target of PJB Class are heavy because of suitable with the industry's requirement with 30% theory and 70% practice. Industrial class curriculum prioritizes synergy and technical effort in the form of teacher training to improve the curriculum implementation that aglined with industry needs [9].

The teachers of PJB class have competence teachers who have already done upgrading teacher training in industry. This training as one of the requirements for teaching in the PJB because of given the competence demands of the industry. The considerations of teacher requirements include: (1) targets, (2) industry requirements, (3) and industry grade levels that are above the regular grade level [4].

PJB industrial class was implemented together by school and industry and supported by East Java provincial education office. Theory learning supported by guest lecture from industri. Practice learning implementated in school and industry accordance burden and curriculum competence target. Industrial class aims to give contextual learning accordance the reality to student, so the school required to bring the companies to provide education in schools to created graduates suitable in work field [10].

The grade 1 as the basic and future learning, conducted the selection of students through the test. Grade 2 as prakerin implementation in PJB's industry for 1 year by using monitoring systems in PT PJB industry. Students during the prakerin process carry out the direct practice with state-owned vital equipment. This result accordance with the regulations of the minister of industry in Indonesia number 3 in 2017 section 10 (3) explained that organization of industry practice provide: (1) teaching factory, workshop, and laboratory for practice; and instructor as advisor [7].

SMK PGRI 3 Malang cooperate with certification institution SKP (certification of generating competencies) under the general of the electricity. The SKP certification institution is a subsidiary of PT PJB. competency test conducted in schools or industries depend on the availability of the equipment. In the regulations of the minister of industry in Indonesia number 3 in 2017 section 9 (2) showed that test certification of competence implemented by SKP institutions at competency test sites owned by schools or companies [7]. The certifications given based on criteria from SKP under of electricity as regulated in law number 30 year of 2009 on electricity [11].

Cooperation as a form of work done by several parties who work together to achieve agreed or planned goals [12]. The role of school and industry in the implementation of the program is crucial to achieving the objectives.

The Evaluation and Monitoring of Industrial Class in terms of The Cooperation between School with Department of Electrical Industry of Students in PJB Class (Jawa-Bali Power Generation) of SMK PGRI 3 Malang.

Supervision and evaluation cover all forms of problems during the process. Follow-up of evaluation and supervision is consideration for decision making program MoU and future improvement program if continued. If the cooperation is considered good, the program would be continued but back to the agreement of the parties that work together.

The Prakerin evaluation conduct the prakerin together for 6 months after the prakerin implementation. Which consist of parents, students, industry advisor, stakeholder, and the other parties who interested. School collaborate with SKP certification agency in conducting competency certification test. The appropriate of KI / KD and the competency achievement target become the evaluation and advisor's material.

The prospect of PJB Class is acceptable of the graduates in the work field of electricity sector. The existence of government development programs of power plant with 35000 MW capacity becomes a great opportunity for SMK graduates to be absorbed in the world of electricity field work. The PJB's graduation rate only 20% accepted work in PT PJB but the other graduates can work in electricity working field with 90% level of competence. The competency quality and healthy condition is the important thing for SMK's graduate in

order to be accepted in work field. The existence of government program

The Obstacles and Efforts in order to Cope The Implementation of Industrial Class in terms of The Cooperation between School & Engineering Department of Student in PJB Class (Jawa-Bali Power Generation) at SMK PGRI 3 Malang.

In the implementation of PJB Industrial Class program can not be separated from obstacles as an inhibiting factor. Program implementers strive to overcome and suppress the inhibiting factors in order to optimize the learning process according to the intended purpose. The optimization of the program supported by their own strengths.

The support factors in the implementation of PJB Industrial Class consist of: (1) industry visit, (2) knowledge of electrical engineering with teacher and students training program, (3) students easy to set up, (4) teacher readiness for training, (5) support from education authorities, and (6) employment opportunities from government development programs of 35000 MW capacity power generation.

Obstacles and efforts to overcome the implementation of PJB Industrial Class consist of: the first is unstable economy of parents to cope the socialization program. Second, limited school infrastructure causes the school to maximize everything which have been provided and implement prakerin in the industry. Third, the independent students need an assistance. Fourth, the school gave advice about health and also conduct periodic medical test. Fifth, The school took the initiative as means conduct independent upgrading of teacher training which have not been implemented yet.

PJB graduates equipped with industry-based competencies are expected to be accepted in work field of electricity sector, especially in the PJB corporation. The competency quality and healthy condition is the important thing for SMK's graduate in order to be accepted in work field.

IV. CONCLUSIONS

The PJB Industrial Class (Jawa-Bali Power Generation) is a cooperation program of education and training aimed to improve the educations quality as well as competence which based on electricity industries need. The implementation process of PJB industrial class refer to the curriculum implementation that synchronized with PJB's industrial need. The school did the implementation process for 3 years with the grade 1 as the basic and future learning, grade 2 as prakerin implementation in PJB's industry for 1 year by using monitoring systems. Grade 3 focus on preparing national examination and competencies certification (SKP). School and industry cooperate in accordance with their respective roles to support the learning process to achieve goals during the process. The appropriate of KI / KD and the competency achievement target become the evaluation and advisor's material.

The implementation process of PJB Class has been carried out as much as possible and programmed properly. The low absorption of graduates to the PJB Industry in 2017 can be improved by better coordination between schools and industry including: increasing competence with quality industry practices, providing employment opportunities from the industry, and routine health check programs.

V. SUGGESTIONS

Based on the above description and conclusions, following suggestions given by the author: (1) teacher always upgrade their competence and knowledge through the teacher upgrading program, (2) for school which have not been implemented industrial class cooperation program yet, advised to start cooperating with appropriate industries, (3) industry as a user who needs a competent workforce should contribute to provide opportunities and support SMK's education, (4) student are advised to carry out the learning process well and maintain their health, and (5) for the next researcher in order to study similar research from the other fields of study.

REFERENCES

- [1] Kementerian Pendidikan dan Kebudayaan. *Rencana Strategis Kementerian Pendidikan dan Kebudayaan 2015-2019*. 9 (2015)
- [2] H. Kusuma. *Pengangguran di RI Didominasi Lulusan SMK*. (online), (<https://m.detik.com/finance/berita-ekonomi-bisnis/3493153/pengangguran-di-ri-didominasi-lulusan-smk>), accessed November 2th 2017. (2017)
- [3] A. Sonhadji. *Manusia, Teknologi, Dan Pendidikan Menuju Peradaban Baru*. 170 (2013)
- [4] E.R. Santoso. *Peran Industri dalam Meningkatkan Mutu Pendidikan melalui Kelas Industri Studi Kasus di SMK PGRI 3 Malang*. (2016)
- [5] Instruksi Presiden RI No. 9 Tahun 2016 Tentang Revitalisasi SMK Dalam Rangka Peningkatan Kualitas dan Daya Saing Sumber Daya Manusia Indonesia. (2016)
- [6] Yoto. *Jurnal Pendidikan Sains*. Model "Diklastri" Sebagai Alternatif Meningkatkan Mutu Lulusan SMK, **2**, 3 (2014)
- [7] Peraturan Menteri Pendidikan dan Kebudayaan RI No 03 Tahun 2017 Tentang Pedoman Pembinaan dan Pengembangan SMK Berbasis Kompetensi yang *Link and Match* Dengan Dunia Industri. (2017)
- [8] Annurrahman. *Belajar dan Pembelajaran*. 195 (2009)
- [9] D.E. Wicaksono, Yoto, Basuki. *Jurnal Pendidikan Profesional*. Implementasi Pelaksanaan Kurikulum Kelas Industri Di SMK Muhammadiyah 1 Kepanjen Kabupaten Malang, **6**, 1 (2017)
- [10] Wibowo, N. *Jurnal Pendidikan Teknologi dan Kejuruan*. Upaya Memperkecil Kesenjangan Kompetensi Lulusan Sekolah Menengah Kejuruan Dengan Tuntutan Dunia Industri, **23**, 1 (2016)
- [11] Undang-Undang RI Nomor 30 Tahun 2009 tentang Ketenagalistrikan. (2009)
- [12] Bitar. *Pengertian, Manfaat Dan Bentuk Kerjasama Beserta Contohnya Lengkap*. (online), (<http://www.gurupendidikan.co.id/pengertian-manfaat-dan-bentuk-kerjasama-beserta-contohnya-lengkap/>) accessed August 26th 2018. (2016)