

# Implementation of Work Based Learning on Welding Engineering Expertise Competency in The Manufacturing Industry

<sup>1</sup> Achmad Romadin \*, <sup>2</sup> Didik Nuhadi, <sup>3</sup> Yoto Yoto

Universitas Negeri Malang, Indonesia

Email : <sup>1</sup> achmad.romadin.1905518@student.um.ac.id \*, <sup>2</sup> didik.nurhadi.ft@um.ac.id, <sup>3</sup> Yoto.ft@um.ac.id

\* correspondence author

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## ABSTRACT

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Vocational High School is an institution that produces labor. However, the problem is that it is actually the highest contributor to unemployment in working-age population value. One of the breakthroughs to anticipate this is by implementing innovative learning. Work Based Learning is a job-oriented learning in industry. This research used qualitative research. The focus of this research is the implementation of Work Based Learning based on the alignment of existing learning in schools with industry, which is arranged in an industrial class implemented curriculum. From the results of the research, there are 3 implementations of Work Based Learning which are integrated with each other including learning in the school environment, in the society, and in the industrial environment. The evaluation of Work Based Learning was carried out by means of daily test assessment, mid-test assessment, final test assessment, skill competency test and open examination of industrial work practice report.

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## Introduction

Vocational High School is a secondary-level formal education institution that is set up to prepare students to have the ability to work in a particular field of work. Vocational High School is closely

related to the preparation of labor (Estriyanto et al., 2021). Furthermore, Vocational High School (SMK) will develop in accordance with the current Industrial regime (Billett, 2011). The purposes of Vocational High School (SMK) according to Vocational Secondary Education are (1) entering employment; (2) having competency, career, and self-development; (3) becoming workforce who meets the industrial needs; and (4) becoming a creative, productive, and adaptive workforce (Sampun et al., 2017).

Globalization in the Asean Economic Community (AEC) 2015 makes people have to be alert to face the competition in labor market (DiBenedetto, 2018). In other words, the quality of graduates is questioned in labor market competition in the world. For a long time, Vocational High Schools (SMK) have received a negative view in society. It is proven by the low quality of vocational education inputs, low industry support, and lack of adequate facilities. Furthermore, from the data of Central Bureau of Statistics survey in 2017-2019, which stated the number of workers in February 2019 survey, it was found that vocational high school graduates contributed the highest unemployment rate (Badan Pusat Statistik, 2019).

One of the breakthroughs in anticipating the vocational unemployment problem is the application of learning models that are relevant to the learning desired by the manufacturing industry. SMK PGRI 3 Malang is moving towards industry-based learning by implementing Work Based Learning. Partnering with several manufacturing industries, SMK PGRI 3 Malang is consistent in producing graduates who are able to compete in the manufacturing industry. PT. Bambang Djaja is one of the manufacturing industries which partnered with SMK PGRI 3 Malang, in terms of Work Based Learning in welding engineering industry class program. The merger between educational institution and industry is expected to be able to provide mutual benefits as well as jointly produce graduates who are able to compete in the global market.

The development of vocational education learning must continue to be carried out by its administrators thus the quality of the graduates is in accordance with the demands of the job market (Ulfa et al., 2019). Work-Based Learning is a teaching method that supports the transfer of basic degrees and requires students to be able to balance learning in the classroom and their role as prospective workers (Haruna et al., 2019). Work-Based Learning innovation is where the workplace becomes a place of learning and the subject of the applied curriculum (Major, 2016). Work-Based Learning is seen as a learning process that focuses thinking on a particular job, used to facilitate students in seeking important knowledge, skills, and abilities (Ouda, 2012). Work-Based Learning model is a standard learning model of its implementation system, including the standard of infrastructure facilities which is owned, certified infrastructure or human resources, resource management, the implementation of HSE, and supporting facilities with work standard (Siswanto, 2013).

Based on the background above, this article will focus on: (1) the strategy of Work-Based Learning preparation on the competence of welding engineering expertise in the manufacturing industry; (2) the strategy of Work Based Learning implementation on welding engineering expertise competence in the manufacturing industry; and (3) Work Based Learning evaluation model on welding engineering expertise competence in manufacturing industry. Furthermore, this research contributes as: (1) an overview of the implementation of innovative learning in vocational education; (2) alignment of learning between educational institution and the world of manufacturing industry; (3) synchronization of industrial competence with subjects in vocational education.

### **Method**

The research method used was a case study. The data collection techniques used interviews, documentation, and observation. Then, they were written using code, for example (F1-a/KabidMes-W /8-1-2019), which was then described on the transcript of the data findings. The location of this research was SMK PGRI 3 Malang which was located at Jl. Tlogomas No. 29 lowokwaru Malang, which achieves institutional A accreditation, and has the most industry partners and industrial class programs in Malang. Informants in this study were the Head of Division of Mechanical Engineering, Head of Mechanical Engineering, Field of Industrial Cooperation Staff of SMK PGRI 3 Malang, Productive Teachers, Students, HRD and employees of PT. Bambang Djaja Surabaya. Furthermore, the results of the data were analyzed using triangulation of sources and data, which were then concluded in the form of descriptive data findings for further discussion.

### **Result and Discussion**

In the implementation of learning on the competence of welding engineering skills, SMK PGRI 3 Malang applies work-based learning. Industrial class PT. Bambang Djaja became a concept in this learning. As for the implementation of Work Based Learning, it was carried out in the school, in community, and in industrial environment. The learning objective of Work Based Learning conducted by SMK PGRI 3 Malang in collaboration with PT. Bambang Djaja was aligning the existing learning objectives in schools with industry. It aims to answer the challenges in the implementation of vocational high schools, that is to meet the needs of the manufacturing industry.

### **Work Based Learning Preparation Strategy**

Industrial class program PT. Bambang Djaja on the competency of welding engineering skills at SMK PGRI 3 Malang, is expected to be able to implement Work Based Learning. The basis for implementing Work Based Learning, is a strategy of vocational high school to distribute its graduates to the manufacturing industry. Starting from the signing of a memorandum of understanding (MoU) between SMK PGRI 3 Malang, PT. Bambang Djaja, and the East Java Provincial Office, this cooperation program becomes a common goal in profitable activities, where: (1)

Vocational High Schools are expected to be easier to distribute workers; (2) it is easier for industry to get workers according to their needs; and (3) the education office, achieved in the implementation of the link and match program. The preparation of Work Based Learning includes: (1) infrastructure; (2) HR certified by PT. Bambang Djaja; (3) learning administration (RPP (lesson plan), annual program, semester program, and syllabus); and (4) learning modules. The preparations of PT. Bambang Djaja are: (1) jobsheet; (2) GMAW and SMAW; (3) thin plates, and (4) HR, who will audit the feasibility of the welding practicum workshop.

### **Work Based Learning in the School Environment**

The implementation of Work Based Learning on welding engineering skills competence has a 3-year learning program. The curriculum used is the implementation curriculum, that is the synchronization curriculum between the 2013 curriculum revision 2017 and welding competencies in PT. Bambang Djaja. Work Based Learning in SMK PGRI 3 Malang applies a full day school system of 5 school days starting from 06:45 a.m until 03.00 pm. 06:45 a.m. is the check-in time applied in SMK PGRI 3 Malang. Next, the students rush to their class, passing the Health and Safety signs with reference to HSE in Industry. To foster students' religious spirit, they are asked to pray before the learning activities begin. A total of 32 students in the study group studied in the classroom, and 16 students in the welding practicum in the workshop.

In the implementation of Work Based Learning on the competence of welding engineering expertise, the practicum in the welding workshop applies 2 practicum days and 3 days for learning in the classroom in a week. With the arrangement: grade ten focuses on OAW and SMAW, grade twelve focuses on GMAW and TIG welding. While the eleventh grade learns Work Based Learning in the industry, PT. Bambang Djaja. The competency that is prioritized in the welding engineering industry class is the competency of thin plate welding with SMAW and GMAW. SMAW competence required by PT. Bambang Djaja is combined in grade ten learning. Meanwhile, GMAW competence is combined in the twelveth grade learning.

### **Work Based Learning in Community Environment**

The implementation of Work Based Learning in the community environment is carried out during the New Student Orientation Period (MOS) and industrial work practice briefing. At this time, students conduct military education in Military Education and Training Malang which was carried out for 1 week, it aims to: (1) change the mindset of students to be independent; (2) improve students' discipline; (3) train students how to value time; and (4) and how to tolerate others. The second implementation of military education is given when they have briefing for their Industrial Work Practice. One week before they go to their industrial work practice place, they once more have

got character and military education at Military Education and Training Malang. This activity is a continuation of the program during the orientation period.

In general, the learning objectives of Work Based Learning in this community environment are to: (1) train discipline in the community; (2) respect human beings in the community; (3) establish friendship and cooperation in social life; (4) direct students to easily get along in the community; (5) express opinions, respect opinions, and create creative ideas in the community; and (6) to produce excellent and dignified students in the community.

In particular, the learning objective of Work Based Learning in the community is the fulfillment of the school's motto. Success by discipline was chosen to be the icon of SMK PGRI 3 Malang, it surely becomes an advantage that is highlighted by SMK PGRI 3 Malang. Work Based Learning is one of the school's strategies to improve student discipline. In other words, student discipline is embedded and used to when they sit in school. In addition, discipline which is the motto of SMK PGRI 3 Malang, makes the attractiveness of the job market in the recruitment of prospective workers. With the hope, if the world of the manufacturing industry is looking for prospective workers who have high discipline, then they will choose graduates from SMK PGRI 3 Malang.

### **Work Based Learning in Industrial Environment**

Industrial work practice is a mandatory industrial class program at SMK PGRI 3 Malang. The preparations are as follows: (1) provision of HSE knowledge; (2) provision of industrial cultural knowledge; (3) discipline in cooperation with the military office; (4) administrative preparation. The implementation of industrial work practice of industrial class on welding competence at SMK PGRI 3 Malang is carried out for 1 full year at PT. Bambang Djaja. That implementation time is chosen as the basis for the expected competency improvement between SMK PGRI 3 Malang and PT. Bambang Djaja Surabaya. This is supported by the legality of the DPSMK which stipulates that the industrial work practice will be carried out for 6-12 months. The implementation of the industrial work practice in the industrial environment begins with the selection made by PT. Bambang Djaja. The selected students will have internship at PT. Bambang Djaja. It aims to fulfill the department of PT. Bambang Djaja, which is oriented towards the effectiveness of industrial work practice implementation. The students who are selected for internship at PT. Bambang Djaja are for about 6 to 11 students.

In the welding engineering department, industrial work practice students will be placed in mechanical division. The placement of industrial work practice students is positioned equally with the prospective workers (interns). It aims to develop their mindset to become a workforce. There are several divisions that will be occupied by industrial work practice students at PT. Bambang Djaja such as: (1) clamp, (2) cutting, (3) production bolt and nut, (4) tank, (5) coil, (6) core assembly,

(7) final, and (8) painting. The job description of the industrial work practice student placement division is described in Table 1.

Table 1. Job Division Description

No	Division Name	Information
1.	Clamp	Clamp division workers work on the cover, transformer fasteners are not fixed (can be disassembled)
2.	Cutting	The cutting division is the work part that does the cutting of the plate used as the transformer frame.
3.	production bolt and nut	The production bolt and nut division make bolt and nut in transformer connections that are not fixed
4.	Tank	The tank division is the work part that works on the transformer tank.
5.	Coil	The coil division works on the transformer coil in TV, LV, and HV ways.
6.	core assembly	The core assembly division is the division that works on placing tools, stacking, coiling connection, and transformer assembly.
8.	Final	The final division is the division that works on brushing and finishing the transformer.
9.	Painting	The painting division is the division that does painting on the transformer.

The divisions of mechanical work on PT. Bambang Djaja are chosen to be the placement of industrial work practice students. They will work in shifts 1, 2, and 3. The working hours of shift 1 begin with briefing activity at 07:45 a.m, then continue with work starting at 08:00 a.m until 03:00 p.m. Shift 2 work hours begin with briefing activity at 02:45 p.m, then continue to work from 03:00 p.m to 10:00 p.m. Shift 3 begins with briefing at 09:45 p.m, followed by work at 10:00 p.m until 03:30 a.m.

In terms of competence from the implementation of industrial work practice at PT. Bambang Djaja, welding engineering students learn interdisciplinary study. The placement of the industrial work practice implementation is not only in the welding section, but it is placed in a linear work in the field of expertise that is mechanical engineering. Students will be placed in the division of (1) clamp, (2) cutting, (3) production bolt and nut (4), tank, (5) coil, (6) core assembly, (7) final, and (8) painting. This is based on the mapping of labor needs in PT. Bambang Djaja. During the internship, the students of SMK PGRI 3 Malang get the position of helper at PT. Bambang Djaja. In the implementation of production work, 1 production machine is operated by 1 operator and 1 or 2 helpers. This has become a standard in the implementation of internship at PT. Bambang Djaja. Furthermore, if in a division there is a job transfer, the industrial work practice students will be placed in the division that needs more helpers.

### Work Based Learning Evaluation Model

Evaluation of Work Based Learning on the competence of welding engineering expertise includes 2

evaluations, (1) evaluation in school environment, and (2) evaluation in industrial environment.

### **Evaluation of Learning in the School Environment**

Evaluation of Work Based Learning in the school environment is carried out normatively and summatively. The normative evaluation is carried out by means of the Daily Test (UH) assessment conducted by normative, adaptive, and productive teachers at different times. Daily exams in normative evaluation are carried out at the completion of learning on certain basic competencies. Then the summative evaluation is carried out by means of the Mid-Semester Assessment and the Final Assessment in the end of the semester which are carried out simultaneously in a jointly determined time. Summative evaluation on C3 subjects includes the Skill Competency Test conducted by SMK PGRI 3 Malang and PT. Bambang Djaja Surabaya. UKK is a Skill Competency Test that is used as a consideration for graduation of industrial class students. This test invites several industry partners of SMK PGRI 3 Malang and PT. Bambang Djaja takes part in providing student assessments. The Skill Competency Test is in the form of a welding practicum assessment with jobsheet of SMAW position 1G Butt Joint V-coupled connection using LB 52 U/7016 U 2.6 electrodes. While the filler and capping use LB 52/7016 3.2 electrodes. The result of the Skill Competency Examination (UKK) is in the form of an assessment certificate signed by the principal of SMK PGRI 3 Malang, internal examiner board, and external examiner (industry).

### **Evaluation of Learning in Industrial Environment**

Evaluation of learning in the industrial environment is conducted by PT. Bambang Djaja and SMK PGRI 3 Malang. PT. Bambang Djaja conducts one week monitoring on industrial work practice students. SMK PGRI 3 Malang conducts monitoring with the 1234 method. The 1234 monitoring method is a month calculation method. Monitoring 1234 is the interval of the 1st, 2nd, 3rd, and 4th month when the industrial work practice supervisors of SMK PGRI 3 Malang come to the industry to monitor the process. Meanwhile, in the month that does not include a break, monitoring is carried out by telephone between supervisors in industry and schools. Evaluation in the Work Based Learning industrial work practice program is carried out at the end of the practical implementation. There is an internship report prepared by students during the industrial work practice, accompanied by industry and school supervisors. Furthermore, the report is tested by examiners from PT. Bambang Djaja and SMK PGRI 3 Malang. The exam becomes the proof of the implementation as well as the assessment of the industrial work practice program.

The preparation, implementation, and evaluation of Work Based Learning at SMK PGRI 3 Malang is described in Figure 1. Starting with the preparation of Work Based Learning formulated by SMK PGRI 3 Malang with PT. Bambang Djaja and legalized by the East Java Provincial Education Office. Then the implementation of the Work Based Learning program includes, (1) learning in the school environment, (2) learning in the community environment, and (3) learning in the industrial

environment. While the evaluation of the Work Based Learning program is carried out in the form of daily exams, mid-semester assessments, final test assessments and skill competency test which are carried out jointly with the industry partner of SMK PGRI 3 Malang.

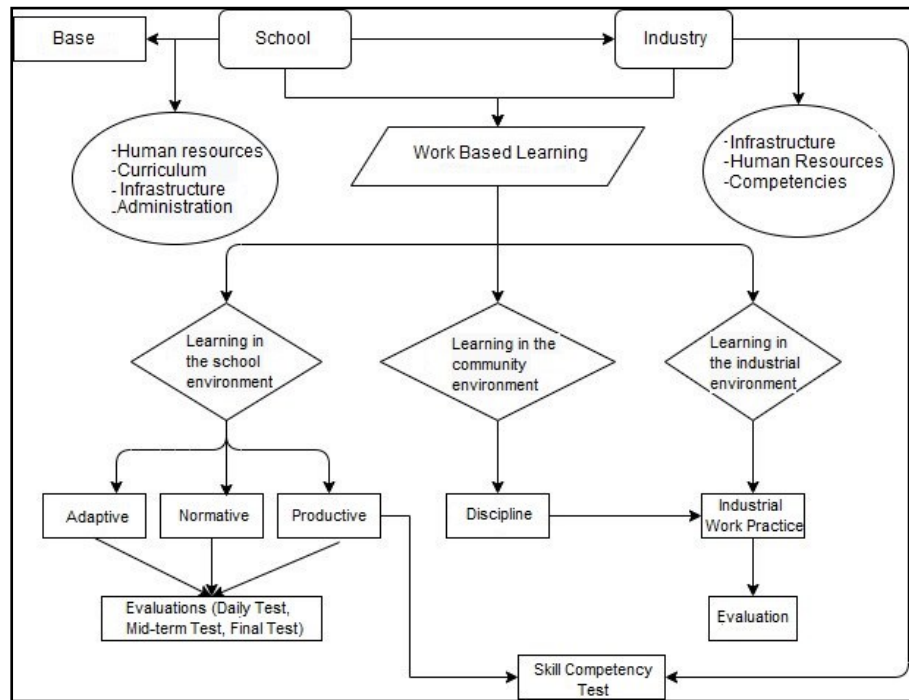


Figure 1. Work Based Learning at SMK PGRI 3 Malang

## Discussion

Work Based Learning conducted by SMK PGRI 3 Malang synchronizes existing learning in schools with industry. Work-Based Learning is a teaching method that requires students to be able to balance learning in the classroom and as prospective workers (in the industry) (Haruna et al., 2019). Work Based Learning is based on learning experience in the workplace and theoretical understanding of practical skills (Major, 2016). Furthermore, Vocational High School (SMK) learning can not only conduct School Based Learning, but it also needs to implement Work Based Learning (Hadromi, 2014).

## Work Based Learning Preparation Strategy

Work Based Learning begins with the signing of a memorandum of understanding (MoU) between SMK PGRI 3 Malang, PT. Bambang Djaja, and the East Java Provincial Office. The Memorandum of Understanding (MoU) is used as cooperation commitment between several parties concerned in the implementation of the program. The MoU is used as a partnership between SMK and industry, which is oriented towards the sustainability of programs that run effectively and efficiently (Oktafiyah, 2020). Furthermore, the MoU or memorandum of understanding in the form of a



document that defines the terms of cooperation between 2 or more parties is used for the implementation of programs or activities thus it can be run effectively (Leke et al., 2014).

Work Based Learning preparation includes preparation of: (1) infrastructure/ facilities; (2) HR certified by PT. Bambang Djaja; (3) learning administration (RPP (lesson plan), annual program, semester program, and syllabus); and 4) learning modules. Furthermore, the preparations carried out by PT. Bambang Djaja are: (1) jobsheet; (2) GMAW and SMAW; (3) thin plates, and (4) HR, who will audit the feasibility of the welding practicum workshop. This learning preparation is in line with Sholihannisa research (2017) which stated that the preparation of Work Based Learning includes, (1) industrial cooperation, (2) curriculum, (3) jobsheet, (4) learning devices, and (5) modules (Sholihannisa, 2017).

### **Work Based Learning in a School Environment**

Work Based Learning learning in the environment of SMK PGRI 3 Malang on the competence of welding engineering expertise has a 3-year learning program, and applies a synchronization curriculum. Work Based Learning has approaches and strategies, to integrate the theory and work practices contained in previously designed curriculum (Henderson et al., 2019). Work Based Learning in the environment of SMK PGRI 3 Malang implements a full day school system of 5 school days, with the number of 32 students in one study group. it is in accordance with the Government Regulation No. 22 of 2016 which mentioned that the maximum number of students at the vocational high school (SMK) level as many as 36 students (Permen, 2016). The positive impact of full days school is providing more experience for students in learning with longer lesson hours, as well as the learning experiences got by students are able to reduce juvenile delinquency (Oktavia et al., 2019)

The application of OSH discipline becomes a culture applied by students in the environment of SMK PGRI 3 Malang. The world of industry applies the culture of OSH discipline managed by the OSH Management System in order to ensure the safety and health of its workers (Junaidi, 2018). Furthermore, the implementation of OSH creates a safe, healthy workplace, and creates a spirit of work for students, which is oriented to practicum learning achievement (Peutula et al., 2019). The purpose of the implementation of Work Based Learning is oriented to the students' experience to the culture of practices encountered in workplace regulations (Henderson et al., 2019). Work Based Learning on welding engineering skills competency focuses on welding competencies applied to industry. The competencies contained in the curriculum must be relevance to: (1) the needs, demands, conditions, and development of the community; and (2) suitability between components in the curriculum (Wardina et al., 2019). The curriculum of Vocational High School contains various development competencies on graduate competencies that are standardized in the world of manufacturing industry (Sudira, 2018). The jobsheet used in the welding practicum of SMK PGRI 3

Malang focuses on jobsheet in the industry. Jobsheets on Work Based Learning affect students' learning outcomes and are able to improve skills (Fakhri et al., 2016). Jobsheets developed by the industry are able to achieve the Indonesian National Competency Standard (SKNI) (Romana, 2020).

### **Work Based Learning in a Community Environment**

At SMK PGRI 3 Malang, students get military education in Military Education and Training Malang. The military education aims to: (1) change the mindset of students to be independent; (2) improve students' discipline; (3) train students how to value time; and (4) how to tolerate others. Military education instills: (1) character for students; (2) instills discipline; and (3) builds noble attitudes and morals for students (Suwarno, 2017).

In general, the purposes of work-based learning in this community environment are to: (1) train discipline; (2) respect human beings; (3) establish friendship or cooperation; (4) direct students to get along easily; (5) express opinions, respect opinions, and create ideas; and (6) produce superior and dignified students. The general objective of military education is able to create 5R culture that is interpreted to include: (1) obedience; (2) honesty; (3) discipline; (4) cooperation; and (5) the spirit of achievement (Fujiyama et al., 2018).

In particular, the purpose of Work Based Learning in the community is the fulfillment of the school's motto, that is success by discipline. This is in line with Ilham research (2019) stating that there are several strategies carried out in responding to the school's motto, including the development of: (1) curriculum; (2) learning; and (3) the support of the school residents (Ilham, 2019).

### **Work Based Learning in Industrial Environment**

The implementation of industrial work practice of industrial class on the competency of welding engineering skills at SMK PGRI 3 Malang is carried out for 1 full year at PT. Bambang Djaja. The field work practice lasts for six months to twelve months (DPSMK, 2017). Furthermore, Atkinson (2016) mentioned that Work Based Learning prioritizes or provides more learning in the workplace (DU/DI) than learning in the classroom (Atkinson, 2016).

The selection of industrial work practice is carried out by PT. Bambang Djaja for students who will do internship at PT. Bambang Djaja. This is for the effectiveness of the industrial work practice implementation. The selection is carried out in accordance with the students' competencies (Melasi, 2018). In the welding engineering department of SMK PGRI 3 Malang, the industrial work practice students will be placed in mechanical divisions.

The placement of industrial work practice students is positioned on an equal basis with prospective workers (interns), which aims to provide students with experience as a workforce. Industrial work practice is the development of Work Based Learning, while the basic competencies possessed by students are obtained at school with teachers (Kuat et al., 2020). There are several

divisions that will be occupied by the students at PT. Bambang Djaja, they are (1) clamp, (2) cutting, (3) production bolt and nut (4), tank, (5) coil, (6) core assembly, (7) final, and (8) painting. There is a selection for the placement of industrial work practice students in the implementation of Work Based Learning in SMK PGRI 3 Malang in the industrial environment. The selection of the students' placement in some industry or industrial field is intended to be subjective, which is oriented to the students' competencies (Wiratama et al., 2018).

In terms of competence of the implementation of industrial work practice at PT. Bambang Djaja, welding engineering students learn interdisciplinary study. It means that the positioning of the implementation of the industrial work practice does not only in the welding, but also in a linear work in the field of expertise, that is mechanical engineering. Interdisciplinary learning is able to improve critical thinking and cooperation from the disciplines studied (Asprilla et al., 2017). The position of helper becomes the position had by the industrial work practice students at PT. Bambang Djaja. Students who do the industrial work practice are considered as candidates for the workforce (Sunyoto et al., 2015).

### **Work Based Learning Evaluation Model**

Starting with an evaluation, Work Based Learning in the school environment is carried out by conducting normative and summative evaluations, by holding Daily Tests (UH), Mid-Semester Assessments (PTS), and Final Semester Assessments (PAS). The evaluation of work-based learning can be reviewed with an assessment in the form of quiz questions and oral questions. The assessment on Work Based Learning includes assessment in the form of assignments, performance, project reports, reflection of process and results analysis by considering ethics and learning context (Henderson et al., 2019). Furthermore, in the summative evaluation, there is a skill competency test (UKK) conducted by SMK PGRI 3 Malang and PT. Bambang Djaja Surabaya. It is conducted to fulfill the knowledge and skill competencies possessed by students while studying at school, while these competencies are tested by internal school examiners and external examiners (examiners from industry) in order to meet competency standards required by industry (Fauzi et al., 2020).

### **Evaluation of Learning in Industrial Environment**

Evaluation of learning in the industrial environment, conducted by PT. Bambang Djaja and SMK PGRI 3 Malang. PT. Bambang Djaja has 1 week of students' monitoring. While the supervisor from SMK PGRI 3 Malang conducts monitoring with the 1234 method. It is a method of calculating the moon. This is in line with research (Anugerah, 2016) that in the implementation of industrial work practice in the world of manufacturing industry, there are 2 monitoring which are carried out by school and industry supervisors, which aims to monitor the industrial work practice students.

The evaluation of work-based learning industrial practice program is carried out at the end of the practice. There is an internship report prepared by students during the industrial work

practice, which is supervised the industry and the school's supervisors, then it will be tested in an open exam. The evaluation of Work Based Learning with the implementation of industrial work practice needs to be done thus it can be a benchmark for success and a reference for implementing the industrial work practice that has not been done (Susanto, 2015).

The preparation, implementation, and evaluation of Work Based Learning at SMK PGRI 3 Malang is described in Figure 1. Starting with the preparation of Work Based Learning formulated by SMK PGRI 3 Malang with PT. Bambang Djaja and legalized by the East Java Provincial Education Office. Then the implementation of the Work Based Learning program includes, (1) learning in the school environment, (2) learning in the community environment, and (3) learning in the industrial environment. While the evaluation of the Work Based Learning program is carried out in the form of daily exams, mid-semester assessments, final test assessments and skill competency test which are carried out jointly with the industry partner of SMK PGRI 3 Malang.

### **Conclusion**

Based on the alignment of existing learning in school and industry. It aims to produce graduates with good quality who are able to compete in the global market. Furthermore, the application of Work Based Learning becomes a government policy in the link and match program where learning leads to a picture of the world of the manufacturing industry. The preparation of Work Based Learning conducted by SMK PGRI 3 Malang and PT. Bambang Djaja must synergize together in preparing the curriculum, infrastructure, students, teachers, industrial competencies, and applied learning programs.

In its implementation, there are 3 implementations of Work Based Learning: (1) implementation of learning in the school environment, which is oriented towards industrial culture and industrial standard practicum; (2) the implementation of learning in the community, which is carried out in Military Education and Training in Malang, which is oriented towards character and military education; and (3) the implementation of learning in an industrial environment (industrial work practice), which is oriented towards producing qualified candidates for work. Furthermore, in the evaluation of Work Based Learning there are 2 evaluation categories: (1) evaluation of learning in the school environment: summative and normative evaluations which are carried out with daily test assessment, mid-semester assessment, final assessment, and skill competency exam; (2) evaluation of learning in the industrial environment which includes evaluation by means of monitoring 1234 and an open examination conducted on the final report of students' industrial work practice.

Therefore, the success of Work Based Learning is based on the achievement of existing programs, including learning in school, community, and industry. In other words, the key to the success of Work Based Learning is the interaction between educational institution, industry, and

related agencies which together prepare graduates from welding engineering expertise competencies who are in accordance with the competencies of the manufacturing industry. This study provides suggestions for SMK PGRI 3 Malang to apply Work Based Learning in the industrial class to other skill competencies. In addition, PT. Bambang Djaja should participate more in the evaluation of learning in the school, community, and industry environment, in order to create the learning desired by industry.

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