

Industrial Class Model during the Pandemic to Support Link and Match between Industries and Vocational High Schools

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Abstract. The industrial class was formed to provide knowledge and broader insight for students based on the industries' requirements. However, several vocational high schools (VHS) could not open industrial classes due to the Covid-19 pandemic. This study was conducted to determine the implementation of industrial class model during the pandemic. This research used quasi-qualitative. The research was conducted at Telkom Vocational High School Malang on software engineering skills competency. The finding showed that the collaboration in the industrial class between industries and VHS are curriculum synchronization, student selection, teacher training, and implementation of internship and job recruitment. The implementation was done through online monitoring by school and industry supervisors. Students have a group project task formed. The supporting factors were the selected students with high abilities through selection process, and the support from the industrial partner. Meanwhile the inhibiting factor was the online learning process, that was unhelpful for teachers to monitor students' activities and to directly boost students' mentality.

Keywords: Industrial Class, Link and Match, Partner Industry, Vocational High Schools.

INTRODUCTION

Vocational High School is an education unit focusing on mastering certain fields. The goal is for students to be competent to compete in the industrial world and like to the development of science and technology based on industry needs. Vocational High School aims to prepare students directly for certain jobs and train students in the skills needed in these jobs (Hartog et al., 2021). In addition, it is designed to develop human resources to face the needs of a rapidly growing market, so they have an important role in providing skilled workers for industry (Suroto & Hung, 2018).

However, some graduates did not get employed because they did not meet the criteria from the industry as evident from the workforce data in August 2020 of 138.22 million people, an increase in the number of the workforce by 2.36 million people. The Labor Force Participation Rate increased by 0.24%. the original unemployment rate of 7.07% increased by 1.84%. Judging from the education level, the open unemployment rate for vocational high schools remains the highest at 8.49% (Central Bureau of Statistics, 2020). This happened because there was a mismatch between the competencies contained in Vocational High School and those needed by industries (Manalu, 2019). The mismatch occurs because the VHS curriculum does not follow the needs of industries, technology that is always developing at industry and educators who are not in accordance with the industry. Therefore, there need a collaboration between VHS and industries to create a competence of VHS graduates based on industry needs (Priambudi et al., 2020).

An effort to increase the relevance of industries needs is through a link and match strategy. Following the Presidential Instruction No. 9 of 2016 concerning the revitalization of VHS, there are 10 steps to be taken and one of them is link and match with industry. Link and match must create relevance between VHS and industries, the curriculum and the competencies from school must follow the requirements from industries (Yuliarnis & Waskito, 2020). Link and match aims to bring together the demand for quality human resources in terms of employment and educational institutions an important role in providing human resources for the world of work (Rahayu et al., 2020). VHS and industry need each other, both require a harmonious, mutually supportive and beneficial relationship. VHS needs facilities and infrastructure to support practical learning in school hence, industrial support is needed to

improve the educational quality. Therefore the need for programs carried out with industry in school (Widiyanti et al., 2017).

One of the link and match programs is the industrial class. Slamet et al., (2017) explained that the industrial class is a collaborative program between school, the industry, and the world of work is integrated in school. The industrial class model was developed with standardized training, it is easy to learn, easy to use, carried out with discussion and practice, and prioritizing skills and knowledge (Achsani et al., 2020). However, in reality, during the pandemic, several VHS programs were hampered. There are several industries that experienced a decline in turnover and even a reduction in employees. This also impacted the VHS program in collaboration with industries.

Based on observation to in several school, industrial classes were unavailable during the pandemic. It became a problem because an industrial class can make VHS student easily keep up with current industrial developments. The industrial class is expected to create a professional workforce ready for industries, master the competencies determined, and understand the industrial world beforehand (Hadam et al., 2017). VHS not only develop students' competencies, but they also required to apply the concepts and theories they acquired in the world of work (Löfgren et al., 2020). Therefore, students need to get real work experience in the industrial world.

From the observation at Telkom Vocational High School Malang, the program, which ran since 2017, was implemented differently during the pandemic. The program itself currently runs on only software engineering skills competency in collaboration with PT. Telkom. The implementation of industrial classes during the pandemic was expected to improve students' ability while link and match with industry to produce skilled students based on industry needs. Therefore, this study aimed to describe the implementation of industrial classes at Telkom Vocational High School Malang during the pandemic to provide insight for others vocational schools.

METHODS

The research used quasi-qualitative. This study collected narrative through interviews during the pandemic at Telkom Vocational High School Malang. The research technique used snowball sampling with source and technique triangulation. The data source triangulation was by conducting interviews with several sources to dig up the same information from different sources such as the Vice Principal of Industrial Relations, Head of the software engineering skills Program, one industrial class supervisor, and one productive teacher of software engineering skills competency. Data collection techniques were performed through observation, documentation, and interviews. Observations were made by making direct visits to Telkom Vocational High School Malang to find out the industrial classes' implementation during the pandemic. This study documented the forms and photos from the industrial classes. Interviews were conducted following the grid and interview guidelines that had been prepared and submitted to informants consisted of: (1) The pattern of cooperation, (2) Implementation of learning industrial class during the pandemic, (3) Supporting factors for the implementation of industrial class during the pandemic, and (4) Supporting factors for inhibiting industrial class during the pandemic.

The data analysis technique used in this research quoted Miles and Huberman's statement that qualitative data analysis goes through four stages. First, record all phenomena found in the field either through observation, documentation, or interviews. Second, reviewing the records of observations, documentation, or interviews, then separating the data that are considered important and unimportant, this work is repeated to check for possible misclassifications. The third describing the data that has been previously classified by taking into account the focus and objectives of the research, and the fourth making a final analysis in the form of a research report.

RESULT AND DISCUSSIONS

The results were obtained from interviews with several data sources as follows. PT. Telkom is a telecommunications company and the largest telecommunications and network service provider in Indonesia. PT Telkom DDS (Digital Service Division) is a combination of several divisions so that not only telecommunications research is carried out but also the submission of telecommunications equipment and innovation center.

Industrial Class Collaboration between Telkom Vocational High School Malang and PT. Telkom

Collaboration is needed for the program to run following the expectations and conditions. Initially, industrial class was a replacement for field work practice. Partner industries must provide and has a legal entity such as company so that the formation of collaboration is carried out easily. The establishment of industrial class can be seen in Figure 1.

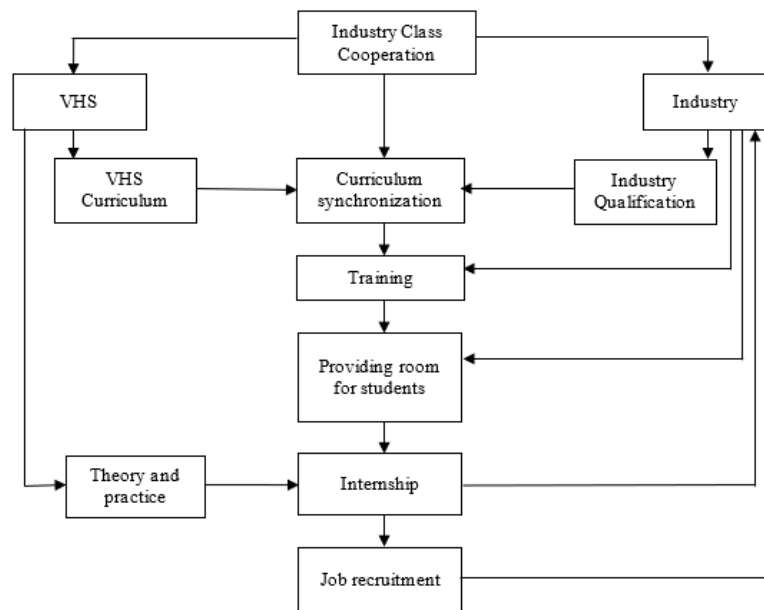


Figure 1. Industrial Class model collaboration between Telkom Vocational High School Malang and PT. Telkom

In Figure 1, the collaboration between Telkom Vocational High School and PT. Telkom was curriculum synchronization to follow the industry. The process involved the industry, curriculum department, head of the software engineering skills program, and productive teachers. The school did discussions and consultations about projects and the result became material references for the industrial classes. This is supported 2017 Permenperin that the competency-based education curriculum must refer to the Indonesian National Work Competency Standards, the need to involve industry associations, industrial companies and industrial estates. Broadly speaking, Telkom Vocational High School Malang curriculum is from industry. Curriculum synchronization a link and match to make students skills follow what industries' needs. Indaryatno et al., (2020) argues that curriculum is a plan, objectives arrangement, contents and learning materials based on learning techniques as a guide in carrying out learning activities to achieve learning objectives. Link and match in VHS the is the link between educational programs with the wider community and its with community needs. It aims to bring the supply and demand for human resources closer, especially those related to the quality of employment where the world of education acts as a provider of human resources for the world of work and for those who need them (Rahayu et al., 2020).

The second collaboration is training. Training is given to Productive Software Engineering teachers and students for one month. The training is carried out before the implementation of the industrial class and aims to provide an overview of the material. The teacher training is required to improve skills following current industrial developments. The teacher can provide a more specific explanation of the material related to the state of the industry. Training is carried out for all teachers to generalize the teacher's skill to create skill uniformity for all productive teachers. Teacher training program is supported by research of Widiyanti et al., (2017) that teachers who teach in industrial classes are given training which is carried out in industry in stages for approximately one month.

The third collaboration is to provide room for industrial class students to carry out projects given by the industry, so that students can discuss and work on industrial project assignments. There is no special application for the project and students already have their own laptops. The fourth collaboration is the placement of internship in the Telkom industry specifically for students who graduate in the industrial class. This statement is supported by Achسانی et al (2020) in their research results saying that one of the things they do for the industrial class cooperation program is field work practice. Internship aim to develop the previously learned materials.

The fifth collaboration is the job recruitment after graduation, especially for students who take Telkom's industrial class. This statement is supported by research by Slamet et.al., (2017) that one of the industrial class collaboration programs is the distribution of graduates. Graduate recruitment usually re-selected students whose capability follow the industry's needs and regulation. However, industrial class students after graduating are immediately recruited by the Telkom industry, because they work following what PT Telkom needs. Industrial class graduates, then, have options to take the offered job or not.

Implementation of Industrial Class at Telkom Vocational High School Malang

For the first industrial class, students were selected by the school. The selection was carried out in class X during the transition to class XI through report cards. Students who passed the initial selection use the industry-adjusted curriculum conducted in class XI. Industrial class learning was usually done in school, but during the pandemic, industrial class learning was done online. As decided by Ministry of Education and Culture (2021) that learning during the Covid-19 pandemic is to be done through by distance learning. Learning materials were provided from to students. Practical learning was done at home, because in general, software engineering skill programs only require a laptop to carry out the practices. The learning in the industrial class follows the provisions in the industry using Node React.

The next selection was done by the industry. Through written tests, interviews, and student portfolios while working on practical assignments. The class required 10 to 20 students in Class XI. The test material was determined by the industry because their needs are entirely different with the VHS, so the VHS gave full authority to the industry in determining the test material for students in the industrial class. Schools only administer of administering industrial class tests. Other things to consider besides test results were student report cards and interviews were entirely left to the industry as written by Priambudi et al., (2020) that in the industrial class the question material is entirely from industry, the selection is carried out entirely by the industry, while the school is only the organizer of the industrial class and help a rank of students who take part industrial grade.

Students were given projects and divided into several small groups for 5 hours before the school ended. Industrial class learning during the pandemic took place online, school assistant teachers and industries monitored and checked project assignments in the industrial class. Students can ask about materials or assignments not understood. Priambudi et al., (2020) explained that the learning carried out in the industrial class emphasizes practice rather than material, this aims to prepare independent and professional graduates to join and meet the industrial needs.

The implementation of industrial class learning continues with the implementation of street vendors. Students conducted street vendors in the industry in accordance with the collaboration that has been carried out by both parties. The implementation of street vendors during the pandemic is carried out online. The implementation of internship at Telkom Vocational High School Malang is carried out for three months in semester V. Internship learning is not much different from industrial class learning, starting from the division of groups, and project assignments. Each group has its own field supervisor, so if there is something that is not understood, the field supervisor will be assisted by the field supervisor to assist them.

Students' project assignments are similar with what employees' do. The difference lies in the quantity. If the employees are given 10 job logs, students are given 5. It is safe to say that students in field work practice have smaller job portions. The project was not a trial project, support link and match with the industry. Learning in school makes good initial capital for students who will carry out internship for wider experience (Arfandi & Sampebua, 2016). The implementation of internship is expected to gain work experience in order to have professional skills, strengthen links and match, improve the efficiency of education and workforce training, provide recognition and appreciation for work experience as an educational process. Based on the explanation above, industrial class learning continues to the internship program, this is a form of school and industry to prepare students to join industries by preparing theory and practice so links and matches with industry be more increase, and have wider job opportunities.

Supporting and Inhibiting Factors

The student is the first supporting factors for industrial class at Telkom Vocational High School Malang. The selected students had excellent ability, or above average students, and were screened accordingly. Another supporting factor is the industry. PT Telkom as the industry was very supportive in implementing internship and industrial classes to create students.

The inhibiting factors during the pandemic is online learning process. Teachers could not monitor student activities, build students mental, control the subject and practical assignment directly. The students found it difficult to consult the teacher. Therefore, communication between teachers and students is an important part in learning process.

CONCLUSION

The industrial class was formed to provide a knowledge and broader insight to students based on the development of competencies required by industries. However, several VHS could not conduct industrial classes during the pandemic because the school partner industries are being impacted by the Covid-19 pandemic. This study was conducted to determine the implementation of industrial class model during the pandemic. The of collaboration included curriculum synchronization, student selection, teacher training, implementation of internship and job recruitment. During the pandemic, the class was conducted online with the help of school and industry supervisors. The implementation of internship for industrial class students based on internship partner industries to create skilled and developing students in accordance with industry needs. Recruitment of graduates of students in the industrial class is directly recruited by PT. Telkom, because students are considered capable of completing project assignments given by the industry, in other words, the abilities possessed by students meet the criteria for industrial needs. This really supports the school's link and match program with industries. Supporting factors are selected students who have high abilities obtained through the selection process, and industrial partner support for the implementation of industrial classes. While the inhibiting factor is that learning is online learning process, it cannot help the teacher to monitor student activities and build students mental.

A factor in industrial class consideration is partner industry selection. They must have facilities and infrastructure with advanced technology than in school. The aim is that students can learn about the current conditions in the industry at that time, acquire more reliable learning and skills. So, to create link and match with industry in terms of curriculum, theoretical and practical learning. Industrial class cooperation at Telkom Vocational High School Malang must be maintained and developed both in terms of facilities, infrastructure, curriculum, and teacher training so that the learning process can be maximized and produced skilled student and the graduates are absorbed by industries.

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