

EVALUATION OF TEACHING FACTORY PROGRAM IN SMK YP IPPI CAKUNG

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ABSTRACT

The purpose of this study was to examine the implementation of a teaching factory, and the factors that inhibit its implementation at SMK YP IPPI Cakung. The results of the study noted that the implementation of the teaching factory begins with the establishment of a management structure and collaboration with industry and the related education office. The competency standard used is an application of the school curriculum that is Indonesian National Work Competency Standards (SKKNI) or industry curriculum standard involving students who master vocational competencies and have interests or talents. Thus, the learning media in the form of products have been adjusted to competence. The instructors involved in teaching factory are those who have academic qualifications, experience in industry, and commitment. The products are marketed to consumers and then an evaluation of the implementation of teaching factories are conducted by schools and companies. The inhibiting factors in this program are related to human resources, namely teachers and students. There is still lack of teachers for the department of Computer and Network Engineering but they have fulfilled academic qualifications according to their competencies. In terms of student issues, students' lack of interest and funding are the obstacle. For supporting factors of teaching factory, it includes superior products, which raw materials are easily obtained, and work strategies that can be adapted to conditions. In addition, supporting facilities, good infrastructure, good marketing, and sufficient location are some good things to carry out the production.

Keywords: *Teaching Factory, industry curriculum standards, expertise, competence, vocational school*

INTRODUCTION

When the government considered that many vocational high school (SMK) graduates were unemployed and the impact of the 4.0 Industrial Revolution on students and educators, the government together with the education department made a policy of "Revitalizing SMK" or what we call "SMK Revitalization" but by setting a policy "SKKNI Industri ". But the policy needs to be improved because it must be under the national economy. Facing the problem of economic inequality and global trends. Fajaryati (2013), and Perdana (2018) noted that the government was compelled to revitalize the SMK as a whole. Starting from the improvement of vocational curricula that are in line with future needs, including certification that refers to the Indonesian National Work Competency Standards (SKKNI), apprenticeship programs in the industry to improve students' abilities and capacities, teacher training of trainers, to improve the selection system that matches expertise and increase the interest of prospective students becoming vocational students. According to Siswanto (2011), one of the efforts made by the Directorate General of PSMK to achieve the vision of realizing

SMKs that can produce entrepreneurial graduates who are ready to work, smart, competitive, and have a national identity, and can develop local excellence and be able to compete in the global market then from that, Vocational School already has a new program where our students can be creative with the knowledge obtained at school, with industrial teaching and produce products both goods or services. This program is called "Teaching Factory" (TEFA).

According to Vocational Guidance (2015), Alptekin (2001), TEFA is the production and business-oriented learning. Learning through TEFA is the process of mastery of expertise or skills carried out based on actual work procedures and standards to produce products or services ordered by consumers. Mustari (2017), and Wibowo (2016) recognize the level of validity and feasibility of the Teaching Factory learning model and know the effectiveness of the Teaching Factory learning model. Chryssolouris and Alexopoulos (2011) stated that the concept of the Teaching Factory has its origins in the medical sciences discipline and specifically, in the paradigm of teaching hospitals, namely the medical schools operating in parallel with the hospitals (Chryssolouris, Mavrikios, & Rentzos, 2016). Yunanto (2016) noted that teaching Factory prints quality human resources in the use of technology. In the Teaching Factory program, students are expected to make a product or service that is useful for the community. Mavrikios (2018) mentions that the "factory-to-classroom" TF operation mode aims at transferring the real production environment to the classroom and allows students to be trained by addressing appropriate real-life engineering problems. The actual production site is used to enhance the teaching activity with the existing knowledge and experience in the processes of everyday industrial practice (Teng, 2001). The faculty members must be careful in selecting companies. Company commitment to the project is extremely important for its viability. The constant involvement of the industrial adviser determines the success of this hands-on educational approach. According to Widodo (2013), development of soft skills and hard skills learning models related to Teaching Factory so that high school graduates are able to have competitiveness, adaptive and anticipatory, able to learn, skilled, easily adapt to new technologies. In the words of Hasanah (2017) and Bilge (2019), in general, the objective of SMK readiness in implementing Teaching Factory is to use the latest technology and programs that make students able to create and create new things. According to Clemens Faller (2015) and George (2013), in addition, it is used for the practical teaching of students and for evaluating research projects. Mourtizis (2018) and Antero (2014) emphasize that through the Industry 4.0 concept, it is moving to the next phase of digitalization. Industry 4.0 supported by innovative technologies such as the Internet of Things, Cloud technology, Augmented and Virtual Reality will also play an important role in manufacturing education, supporting advanced life-long training of the skilled workforce.

METHOD

This study used an evaluation method with a Context, Input, Process, and Product (CIPP) Model. Researchers collected information when they were on the committee for the formation of the Teaching Factory, which was formed at the Vocational High School of YP IPPI Cakung, east Jakarta. Researchers conducted research by collecting data using observation, documentation, and interviews. The interview was conducted with the Head of the Computer and Network Engineering Skills Competency Program as the main data. Besides that, 20 students from Computer and Network Engineering Skills Competencies who joined the program, three teachers and mentors from PT AXIOO Program were sampled as well to get more comprehensive data.

FINDINGS AND DISCUSSION

The results of this study are adjusted to the research objectives of producing a learning model in vocational high schools using the development of a valid and effective Teaching Factory learning model for planning and installing Computer and Network Engineering systems by strengthening the load of soft skills, hard skills, and environmental skills.

1. **Context**

The researcher also examined that SMK YP IPPI Cakung made a Teaching Factory program in accordance with formal foundations that had been formed from government regulations National Education System Act (UUSPN) Number 20 of 2003 in the explanation of Article 15, it was stated that Vocational High Schools " Vocational education is secondary education that prepares students primarily to work in certain fields ".

2. **Input**

SMK YP IPPI Cakung has an industrial class in collaboration with PT AXIOO Program, and PT ANDIANET. The results of the researchers' observations were the beginning of the formation of the Teaching Factory with the use of grants from the education office given to our school. Then we make a report on the accountability of funding - financing the purchase of facilities and infrastructure to support the Teaching Factory competency program in Computer and Network Engineering Skills. The school has formed an industrial-based TKJ Laboratory. After the facilities and infrastructure have met the SKKNI, the researcher re-observes the preparation of human resources, namely students who involved in the process Teaching Factory learning implementation. Preparation of educators at the YP IPPI Cakung Vocational School has reached the training preparation stage.

3. **Process**

For the Teaching Factory learning process at SMK YP IPPI Cakung majoring in Computer and Network Engineering, there are 20 students who take the Axioo class program. The student is learning. Stages of the Axioo class implementation by synchronizing. The material is prepared from industry on classroom appropriate learning without creating a new curriculum that has been applied in accordance with government regulations. The school and the industry make an indifference called Skillpath which is the overall competence in the Axioo class. This Skillpath becomes the estimated schedule for each competency certification exam week.

In the process of implementing the "Teaching Factory" learning method of joint learning in the PT AXIOO Program is a national movement fostered by the Industrial Axioo Program class. Senior fostered students must teach their juniors in the classroom environment (peer tutors) and disseminate knowledge and competencies that are held to the public (across departments, across levels, across generations). Axioo industrial class students not only learn about Axioo standards but also from various partners. Students after learning with PT AXIOO, these students will carry out Field Work Practices at PT AXIOO and ACP partners. In the process of street vendors in AXIOO street vendors are divided into 4 periods in the year, Following a selection similar to job recruitment, registration is done independently by students.

4. **Product**

Students who have participated in teaching factory programs have produced products and services that are beneficial to society. The list of the products is shown in table 1 below.

Table 1. Products or services produced

No	THE PRODUCED PRODUCT NAME / SERVICE
1	CCTV installation
2	PC Laptop Clinic
3	Internet Service Provicer (ISP)
4	Telepon VOIP
5	Hosting Domain
6	VSP Hosting dan Voucher Internet (MYHOTSPOT.ID)

The research aimed to investigate the implementation of teaching factory model and the limitedness of its implementation. In terms of the implementation of teaching factory, it has run somewhat well considering the products that the students are able to produce as seen in table 1 above. So it means that the teaching factory model is successful to develop the students' competency and skills. However, based on the observation and interviews, some of obstacles are discovered including the human resource issues both by teachers and students. The problems of students are about the lack interest of participating the program since it is related to the funding, which is quite high. For the teacher-inhibiting factor, there are not many productive teachers who have the qualification of computer and network engineering. So lack of teacher also becomes one of the obstacle factors, which needs to be solved by this school.

Aside from the obstacles, there are some factors, which support the implementation of the success of teaching factory model. Some of them include complete facilities, good infrastructure, good marketing and adequate location. The school can also find raw materials easily, which make the product become superior ones. Working strategies, which can be adapted to real condition, become significant factors to the qualified products and the success of TEFA implementation. According to Putra, et al (2018) there are six factors that must be considered in order to get the right teaching factory concept, namely: the learning process, the competence of alumni, the production process in the couples industry, the curriculum, jobs in Industry, and Tools and Infrastructure.

To meet the needs and demands of labor in the world of business and industry today, the education sector must be able to respond to the challenges of today's disruption era by preparing professional-class education. The professional class education can be achieved by implementing the right learning model in vocational high school. In other words, school learning must be well integrated with workplace learning, which is likely to be implemented especially in vocational education and training (VET) (Fitriani, 2019). Thus, teaching factory is the appropriate learning model, which can respond the challenge. In addition, Damarjati (2016) said that learning through a teaching factory aims to foster character and work ethic (discipline, responsibility, honesty, cooperation, leadership) needed by industry and business and improve the quality of results. Learning from simply providing competence (competency-based training) to learning that equips the ability to produce goods / services (production-based training). This means that there needs to be synergistic cooperation between vocational high school and industry through the implementation of the Teaching Factory.

In Indonesia, not many have conducted research on the impact of the Teaching Factory model on students. However, some of them are: research shows that the application of the 6 Step Teaching Factory learning model (TF-6M Model) can improve learners' competence, increase their time at work, and increase soft and hard skills, motivation, sense of responsibility, and their work ethics

(Martawijaya, 2012, Amar, Hidayat & Suherman, 2015,). So, this current research is quite similar to the previous research findings stated above by seeing the products and the services that students can produce. It implies that the model of teaching factory can develop the knowledge, skills and competency of students, which bring significant improvement to quality of students and education in vocational high school.

CONCLUSIONS

Production-based learning in teaching factory model brings an industrial atmosphere into learning, so the students can learn in real working conditions, which can develop their expertise and competency. This learning is expected to be able to make students ready to work and have an entrepreneurial spirit. By employing the model of teaching factory, the number of unemployment from vocational high school graduates can be reduced as well. Students will be more competent in their fields and able to create their jobs. From this program, not only the students get the material but they also go to the field to practice the material directly obtained from the school and distribute it to the industry and the community. Thus, it can be concluded that the teaching factory and its implementation in vocational high school as a proper learning model can encourage the entrepreneurship skills and students' independence as well as develop the innovation by sharing project between the business or industry and the school.

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