JOSS:
Journal of Social Science

Volume 2 Number 5 May 2023
p- ISSN 2963-1866- e-ISSN 2963-8909

THE CONTRIBUTION OF TEACHING FACTORY TO PRACTICAL LEARNING PROCESS, PRODUCTION PROCESS, AND VOCATIONAL SCHOOL QUALITY

Kristanto[1], Tri Kuat[2], Bambang Noor[3]
UAD, Jl. Pramuka 42 Pandean, Yogyakarta /DIY, Indonesia[1,2,3]
Email:sonytrikuat@gmail.com

KEYWORDS
practical learning; production process; teaching factory; vocational school quality.

ABSTRACT

The purpose of the research is; (1) to describe the teaching factory implementation; (2) to describe the contribution of the teaching factory to practical learning; (3) to describe the contribution of the teaching factory to the production process; (4) to describe the contribution of teaching factory on vocational school quality. This research employed a qualitative method with a case study approach. The research was done in SMK Muhammadiyah1 Sukoharjo, and the research subject is the headmaster, teachers, and students. The data collection technique is taken by observation, interview, and documentation with qualitative analysis data followed by data reduction, data display, and conclusion drawing. The result of the research shows that; (1) teaching factory implementation runs well and the teaching factory in the school is more modern and it has become the technopark as a reference of other vocational schools' teaching factory; (2) teaching factory learning contributes significantly on practical learning; (3) teaching factory learning contributes production process; (4) and teaching factory learning contributes vocational school quality in SMK Muhammadiyah 1 Sukoharjo.

INTRODUCTION

Vocational School (SMK) has an important role in providing human resources (SDM) which are useful for developing the country. Preparing human resources means improving the government's economic development, Education and Cultural Department (Kemendikbud) continuously tries to increase the role of SMK as vocational education with several policies so that education can develop continuously (Zainudin, l2012). Specifically, Kemendikbud 2015-2019 has targeted until 2019 to run a teaching factory (TEFA) in more than 1.000 SMK (Dir P SMK, 2017). Based on PP No. 41/2015 article 6 verse 1 the implementation of Vocational Schools for industrial-based competence must be equipped with Profession Certification Board or Lembaga Sertifikasi Profesi (LSP), TEFA and competence test place or Tempat Uji Kompetensi (TUK), then each SMK must implement this TEFA learning model.

TEFA is a learning concept that encourages students to the real working condition. TEFA is a learning concept as an industrial miniature, equipped with industrial production equipment, using industrial operational procedure standard (SOP), so the product and service are similar

to the industry. TEFA is expected to bridge the competence gap between school and industry (Zainudin, 2012).

According to (Eisenhart et al., 2009)"Teaching Factory provides students with real experience in dealing with the real world of work situations. This enables them to develop essential practical skills in specific vocational areas."

The purpose of this study is to evaluate the contribution of the Teaching Factory in improving the practicum learning process in vocational schools and identify the impact of the Teaching Factory on the production process in vocational schools. As well as assessing the influence of the Teaching Factory on the quality or quality of vocational schools and providing recommendations and guidelines for vocational schools in implementing the Teaching Factory.

The benefit of this research is to contribute to the Quality Improvement of Vocational Schools This research will help in evaluating and improving the quality or quality of vocational schools as a whole. The findings of this study can be used as a basis for identifying areas of improvement, developing school development strategies, and improving the competitiveness of vocational schools at the local, national, and international levels.

METHOD RESEARCH

This research uses qualitative methods to describe the implementation of a teaching factory, its contribution to practical learning, the production process, and the quality of SMK. Moleong (2018) stated that the qualitative method as tradition in science depending on person'srson observation. This research emphasi s on understanding to cervaluesvalue, measuring, describing, estimating and giving meaning. Qualitative researcan h has actual setting, the researcher is the key insdescriptiveskriptive data, prioritizing the pr ess and data analysis in e form inductive giving the meaning.

The focus of this qualitative researcha is case study. Case study is an exploration of a system tied with palce and A case. Case study is a research is observing phenoa mena in certain time and activity (program, event, process, institution social group) and collecting information in details and comprehensive by employi data-collectingollecting procedures in a certain period (Creswell, 2015).

The participant of this research headmaster, teachers, educational staff, and students. The data collection of this research uses observation, interview,sw, and documentation (Sugiyono, 2016). The researchis thee es Interactive Model Qualitative Data analysis technique (Miles & Huberman, 2020).

RESULT AND DISCUSSION

Teaching Factory Implementation in SMK Muhammadiyah 1 Sukoharjo

Teaching factory implementation based involves several aspects namely, the human resources aspect in teaching factothe ry, the partnership aspect in teaching factothe the ry, facilities aspect in teaching factory, product aspect in Teaching Factory and marketing Aspect in teaching factory, the following is the explanation:

Human resources aspect in a teaching factory

The human resources aspect in teaching factory is badly needed in implementthe ing teaching factory and prepared to increase the quality by sending teachers and staff in job training, seminar, and worshop to manage the teaching factory learning based on industrial curriculum. Qualified human resourcesare is able educate students to provide good output to work in industry and to be entrepreneur.

The data above is in line with the research of Muhammad & Hamid (2018) that industrial learning in Industry 4.0 indicates the increased demand for production staff skills. Factory learning often focuses on technical skills to train decision makers, work groups and performance monitoring skills. the focus of this research is in planning program, implementation and evaluation teaching factory learning based.

The statement above in line with UU No.20 2003 Pasal 39 Ayat (2) that teachers are professional work force in charge of planning and implementing learning process, judging learning process, guiding and training. They also do researches and dedicate to the society.

Partnership aspect in Teaching Factory

Partnership as the requirement to establish teaching factory, the partnership involves industry, government and school to give management guidance, planning, production implementation and marketing also as quality control of teaching factory product in order to compete in global market. partnership with industry also give strategy concept, guidance, to guide and control quality as quality assurance so that teaching factory can meet quality standard needed business world.

The finding above matches with statement of Syahrul & Purnamawati (2018) that partnership model design based on need analysis and partnership that consists of 7 components namely; (1) government ministry policy, (2) main strategy concept, (3) vocational school policy, (4) industrial management, (5) ministery principle, (6) alumnus competence and (7) the absorbtion of vocaltiona school alumni. Besides, the data above is in line with Lampiran Peraturan Menteri Pendidikan Nasional Nomor 19 Tahun 2007 on Education management standard, that every school makes partnership with other relevant institutions.

The opinion above is strengtened with the finding of Lertari Suharno & Ngatou Rohman (2014) that teaching factory goal provides professional output in their field, develops modern concept curriculum, demostrate correct solution toward the challange from industrial world, also transfers technology from partner industry of students and education institution.

Facilitiy aspect in Teaching Factory

Implementation of teaching factory must be supported by facilities signing the industrial standard because teaching factory is industry located in school. From facility. Management and curriculum are used in industrial based. To complete the facility needed must be syncronised between equipment, curriculum with the product made, so the learning process and production run well and meet the terget planned.

The aboved finding is in line with Hamid, Jalinus, & Inra (2019) that the learning model of teaching factory is a learning and training model that produce competence alumni with industrial competence skills needed. Teaching factory has important potency to make the skill gap narrow.

The learning done under the industrial condition with the lack of training infrastructure or facitlities will make the training process slow. The government must increase SMK budget and develop fund raising.

The above statement in line with UU No.20 Tahun 2005 pasal 45 ayat 1, namely every formal school dan non-formal one provides facilities to meet the education need suitable with the physical potency growth, intelligence, social, emosion and psychology of the students.

Pruduct aspect in Teaching Factory

Teaching factory as industry, produces products which match with the consumers consisting of, product quality, production system and after sale service. Product quality becomes important part from teaching factory. To keep the product quality employs production process carefully involving the students, action is taken to decrease error margin in practice. To anticipate the problem, students are given the safe tolerant work, not finished product, the finished product given to more senior level with the teacher supervision, Quality Control team also quality assurance from the company so qualified products are saleable.

The above finding in line with the statement of Mourtzis et al (2020) that design and manufacture consider the dynamic quality related to the product, service, human resources, process, and environment expected.

The statement above is strengthened with (Dir P SMK, 2008) teaching factory integrates learning process in school to produce product and service. The product and service should be able to to sell in order to give added value. So far, the learning activity in SMK is only practice with practical media.

While production System in teaching factory, marketing team of Businiss Center looking for orders, after getting the orders then analyze their feasibility, through administration, accounting, marketing, the to logistics, construction, sparepart, finishing, assembling. After the process is feasible, then followed up by giving the orders to teaching factory to be executed and ended with the quality control (QC) and delivered to customers.

The above finding in line with Roesminingsih (2021), tearning factory basic principle is integration work world experience to the school curriculum. In teaching factory curriculum all equipment and material, education practitioner are arraged and designed to do production process to produce goods and service.

The statement is strengthened by Dadang Hidayat (2021) that production system of teaching factory namely: receiving orders, analyzing orders, menyatakan kesiapan mengerjakan order, mengerjakan order, evaluating products and distributing product.

Teaching factory gives after sale servie by exchanging products and serves recondition for old products. The service given to insurance the satisfaction of customers in order thatn they Repeat Order/RO, besides, thay become marketer of teaching factory because they will tell to candidate of prospective buyers to come and give orders to the same products.

The above finding in line with Kotler & Hall (2003) that after sale service is a service given by company to the consumers after sale transaction. The opinion is supported by Syahputra (2019) that after sale service is a servive provided by producers to consumers after buying the products from the company. The goal of the service is to grow satisfaction,

admiration, recommendation and for all the repeat orders, creating trust, self beliefs, and reputation conveying guarantee.

Marketing aspect in Teaching Factory

Marketing product of teaching factory is fully handled by Busniss Center (BC). BC team looks for customers or orders by approaching the customer candidates by explaining the products, specification, quality, the time of production and the price. The coverage of marketing involves PKU Muhammadiyah and to other customers.

The above finding in line with statement of Hendra Pranata (2018) that teaching factory can contribute in increasing the spirit of student enterpreneurship by involving students directly dalam in the whole process from planning, production, and marketing.

The opinion is supported by the statement of Sudiyanto et al, (2011) that teaching factory is learning activity by doing production activity for goods and service in education environment by the students. Goods or service produced by students has good quality so can be sold and accepted by society or consumers.

The contribution TEFA learning in practice learning in SMK Muhammadiyah 1 Sukoharjo.

Industrial class formation

Industrial class formation in vocational school is badly needed in order that the students are able to focus in practice learning in major workshop or in teaching factory. In teaching factory students can maximalize practice learning because practice learning in teaching factory is designed berbasis based on product and service in industrial standard, so the students will get a lot of knowledge and skills. Practice learning in teaching factory is link and match between practice learning in school inteaching factory based on industrial need and business.

The above statement in line with UU No.20 Tahun 2005 pasal 45 ayat 1, every formal education and non-formal one provides facilities like major workshop and teaching factory to meet education need based on the growth Physical potency, intelligence, social, emotion, dan student psychology.

The link between industry and vocational school

Teaching factory atau technopark is the connector between school and industrial world. Connector means about learning model, learning material, and business and industry collaboration. So teaching factory or tecnopark brgidges the school and business and industry worldi because learning in teaching factory or technopark in line with real industry.

The finding above is suitable with the research of Jalinus et al (2019) that learning model in teaching factory is a learning and training model that results in competent output with skills needed in industry. Teaching factory has big potency to make the gap narrow in skills. Learning carried out under industry condition but lack of training infrastructure or facilities will slow down the training process. The government must increase fund raising for SMK.

TEFA learning contributes in production process in SMK Muhammadiyah 1 Sukoharjo

The implementation On the Job Training for teacher

Teacher job training becomes facilities increases teacher professionalism to support production process and introduces industrial climate in business and industry. The real experience of pruductive teachers in industry is important capital in learning process in SMK.

Teachers are not doubt in learning process because they have got experinces in industry. Teachers have self-confidence and master practice in industry world.

The data above in line with the research of Muhammad & Hamid (2018) that design of industrial learning factory in industry 4.0 indicates the increase of demand in skills of production staff. The existence of learning factory often focus on technical skills that learning factory also trains decision making, work group and performance monitoring skills.

The statement above in line with UU No.20 2003 Pasal 39 Ayat (2) that teachers are professional work force in charge of planning and implementing learning process, judging learning process, guiding and training. They also do researches and dedicate to the society. Industrial work practice The gap of practice in industrial world and in SMK should get solution for practice in industrial world (prakerin). Industrial practice world is important to prepare students enter the work world. Work world practice or job training for six month bisa can make the students know and practice the theory to be implemented in industry.

The above finding in line with the research of Xing (2020) that found teaching factory learning model is a learning and training model that produce competence alumni with industrial competent skills needed. Teaching factory has big potency to narrow the skill gap.

Learning carried out under industrial condition but lack on training infrastructure or facilities slow down the training process.

Collaboration between business and industrial world

The collaboration between SMK with business and industrial world increase human resources in industrial 4.0 is developing industrial classes, an implementation teacher job training involving suitable material, industrial visit and gust teachers. Cooperation betwen school and business and industrial world must be carried out maximally to eliminate the gap between school and industrial world.

The finding above matches with statement of Syahrul & Purnamawati (2018) that partnership model design based on need analysis and partnership that consists of 7 components namely; (1) government ministry policy, (2) main strategy concept, (3) vocational school policy, (4) industrial management, (5) ministery principle, (6) alumnus competence and (7) the absorbtion of vocaltiona school alumni. Besides, the data above is in line with Lampiran Peraturan Menteri Pendidikan Nasional Nomor 19 Tahun 2007 on Education management standard, that every school makes partnership with other relevant institutions.

The opinion above is strengtened with the finding of Lertari Suharno & Ngatou Rohman (2014) that teaching factory goal provides professional output in their field, develops modern concept curriculum, demostrate correct solution toward the challange from industrial world, also transfers technology from partner industry of students and education institution.

Contribution of TEFA learning to improve the quality of SMK Muhammadiyah 1 sukoharjo.

Knowledge improvement (Soft Skills)

Knowledge in the form of academic competence, personal dan social is important vocational competence, the mature of students is not enough to master vocational competence, students need to be equipped with knowledge to have comprehensive views towards problems, so they can look for correct solutin. Such condition can increase quality of SMK.

The above finding is suitable with statement of Risnawan (2019), that quality means "dynamic condition related to product, serbice, human resources, process, and expected environment".

The above data is in line with the research of Zainudinl (2012) that teaching factory program can increase knowledge, skills, experiences, student discipline and create professional attitude. while the quality of SMK is always connected to quality goods and service, so quality means the goodness or the badness of something (Sinambela, 2016).

Besides, The data above in line with the research of Muhammad & Hamid (2018) that design of industrial learning factory in industry 4.0 indicates the increase of demand in skills of production staff.

The existence of learning factory often focus on technical skills that learning factory also trains decision making, work group and performance monitoring skills.

Skill improvement (Hard Skill)

The skill increase in SMk is carried out in line with industrial standard namely; product and service- based learning happens in industry. Teaching factory learning model is well applied to increase student skill in preparing students to enter work world and to be enterpreneur.

The above finding in line with the research of Rohmah, Sari, & Wulansari (2019), that basic principle of teaching factory is integration experience in work world to school curriculum. In teaching factory curriculum, all facilities and material as well as education practice designed to do production process to produce product and service.

The previous statement is supported by Unsudah, Hery, & Irianti (2020) that teaching factory is a learning activity involving production of goods and service in education environment br students. Goods and service produced by students have good quality so they are saleable and accepted by consumers.

Enpowering SMK by applying industrial culture (Life Skills)

Vocational school enpowering with industrial culture approach is important, from the early time school applied industrial culture disciplinely to create industrial athmosphere, applied rules and industrial behavior through teaching factory. Tha application of industrial culture is an adaptation to know the procedure of industry in order that the students accustomed to the athmosphere when they enter in work world.

The opinion above is strengtened with the finding of Lertari Suharno & Ngatou Rohman (2014) that teaching factory goal provides professional output in their field, develops modern concept curriculum, demostrate correct solution toward the challange from industrial world, also transfers technology from partner industry of students and education institution. In line with the opinion, there should be cooperation between SMK, and business and industry to create industrial culture in accordance with Revitalisasi Pendidikan Vokasi program (Kemendikbud, 2016). Improving enterpreneurship ability Vocational school needs to be supported to prepare the students for enterpreneurship after completing their study. Stimulating enterpreneurship interest is important in developing economy, with the facts that the worker supply is more that vacancy.

The finding in accordance with the research of Sholikhah (2018) that teaching factory can contribute in improving student enterpreneurship spirit by involving students directly in all process in business, from planning to production and marketing.

The statement is supported by Makhbubah & Rusdarti (2020) that teaching factory learning can create student enterpreneur spirit and emphasizes enterpreneurship value to students and contribution of teaching factory to business center. The gap between practice in industrial world and in SMK become problem that needs to be solved by joining job training (prakerin). collaboration SMK and business and industrial world to increase the human resources in industry revolution 4.0 by developing industry classes, means implementing teacher job training.

CONCLUSION

Based on the finding and discussion of the research can be concluded that:

a. Teaching factory learning implementation in SMK Muhammadiyah 1 Sukoharjo runs well, even the existence of teaching factory has been more modern and develops into technopark becoming reference of teaching factory from other vocational schools.
b. Teaching factory learning vocational schools contributes to practice learning in SMK Muhammadiyah 1 Sukoharjo. Students involve actively in practice learning so they are skillful in their own competence to meet skills needed by business and industrial world.
c. Teaching factory learning contributes to production process in SMK Muhammadiyah 1 Sukoharjo. The contribution involves industrial classes formation in vocational schools in order the students are able to focus in production process in major worshop and in teaching factory because teaching factory or tecnopark is the link between schools and industry, whether in learning model, learning material or collaboration with business and industry.
d. Teaching factory based-learning contributes to quality improvement in SMK Muhammadiyah 1 Sukoharjo. The contribution helps students to master their competence so they are ready to work in industry and to be enterpreneur because the learning in teaching factory is in line with business and industrial world.

REFERENCES

Creswell. (N.D.). Research Design Qualitative, Quantitative, And Mixed Approach. Google Scholar

Dir P Smk. (N.D.). Tata Kelola Pelaksanaanteaching Factory. Google Scholar

Eisenhart, R. J. M., Moss, P. A., Solano-Flores, G., & Tobin, K. (2009). Discussion Of Key Issues In Generalizing In Educational Research. Generalizing From Educational Research: Beyond Qualitative And Quantitative Polarization, 265. Google Scholar

Hamid, H., Jalinus, N., & Inra, A. (2019). Development Of Fourth Industry Oriented Mechanical Engineering Mechatronics Learning Devices 4 . 0. 3(4), 266–275. Google Scholar

Hendra Pranata. (2018). Pengaruh Posisi Temperatur Transient Pada Pengelasan Mig Terhadap Distorsi Sudut Dan Sifat Mekanik Pada Aluminium 5083. Google Scholar

Kemendikbud. (2016). Revitalisasi Pendidikan Vokasi. Google Scholar

Kotler, P., & Hall, P. (2003). Marketing Management What People Are Saying - Write A Review. 2002–2004. Google Scholar

Lertari Suharno & Ngatou Rohman. (2014). Efektivitas Pelaksanaan Teaching Factory Siswa Sekolah Menengah Kejuruan (Smk) Di Solo Technopark. Google Scholar

M, D. H. (N.D.). Model Pembelajaran Teaching Factory Untuk Meningkatkan Kompetensi Siswa Dalam Mata Pelajaran Produktif. 229. Google Scholar

Makhbubah, E., & Rusdarti. (2020). Pembelajaran Teaching Factory Berbasis Unit Produksi Untuk Meningkatkan Semangat Kewirausahaan Siswa. 3(1), 1–15. Google Scholar

Miles & Huberman. (2020). Qualitative Data Analysis. International Journal Of Advanced Trends In Computer Science And Engineering, 9(3), 3299–3307. Https://Doi.Org/10.30534/Ijatcse/2020/127932020. Google Scholar

Moleong. (2018). Metodologi Penelitian Kualitatif (Cet Ke-3). Remaja Rosdakarya. Google Scholar

Mourtzis, D., Angelopoulos, J., Dimitrakopoulos, G., & Angelopoulos, J. (2020). Sciencedirect Sciencedirect Sciencedirect Design And Development Of A Flexible Manufacturing Cell In The Design And Development Of A Flexible Manufacturing Cell In The Concept Of Learning Factory Paradigm For The Education Of Generation Concept Of Learnin. Procedia Manufacturing, 45, 361–366. Https://Doi.Org/10.1016/J.Promfg.2020.04.035. Google Scholar

Muhammad, H., & Ph, D. (N.D.). Direktorat Pembinaan Sekolah Menengah Kejuruan Direktorat Jenderal Pendidikan Dasar Dan Menengah Kementerian Pendidikan Dan Kebudayaan Republik Indonesia. Google Scholar

Pelaksanaan, K., Factory, T., Lulusan, M., Dunia, M., Siswa, K., Zainudin, I., Keguruan, F., Ilmu, D. A. N., & Maret, U. S. (2012). Perpustakaan.Uns.Ac.Id Digilib.Uns.Ac.Id. September. Google Scholar

Risnawan. (2019). Manajemen Teaching Factory Dalam Upaya Pengembangan Mutu Pembelajaran Di Smk. 2(1), 1–13. Google Scholar

Roesminingsih, E. (2021). Strategi Kepala Sekolah Dalam Menjalin Kerjasama Du/Di Di Smk. Google Scholar

Rohmah, W., Sari, D. E., & Wulansari, A. (2019). Pembelajaran Berbasis Teaching Factory Di Smk Negeri 2 Surakarta. 29(2), 78–85. Google Scholar

Sinambela. (2016). Manajemen Sumber Daya Manusia: Membangun Tim Kerja Yang Solid Untuk Meningkatkan Kinerja. Bumi Aksara. Google Scholar

Sudiyanto, Yoga Guntur Sampurno, Dan I. S., & Fakutas. (N.D.). Teaching Factory Di Smk St. Mikael Surakarta. 9–19. Google Scholar

Sugiyono. (2016). Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif Dan R&D. Alfabeta. Google Scholar

Syahputra, R. D., Wibowo, S., & Si, M. (2019). Analisis Kualitas Pelayanan Dan Nilai Pelanggan Berbasis Digital Pada Media Sosial Facebook Terhadap Kepuasan Pelanggan (Studi Pada Produk Indihome Di Plaza Telkom Lembong Kota Bandung Tahun 2019). 5(3), 1841–1850. Google Scholar

Syahrul, P. (2018). A Design Of Partnership Model Of Vocational High School With Business And Industrial World. 2018–2019. Google Scholar

Unsudah, E. N., Hery, A., & Irianti, S. (2020). Improving Human Resource Through School-Industry Cooperation Program To Face Industry 4 . 0. 406(Iconhomecs 2019), 280–286. Google Scholar

Xing, Q. (2020). On The Development Of Higher Vocational Education From The International Perspective. Icesd, 396–402. Google Scholar

Zumrotus Sholikhah. (2018). Edupreneurship Dalam Mengembangkan Karakter Kemandirian Santri. Google Scholar