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Production Unit-Based Teaching Factory Learning Model (TEFA) to Increase Entrepreneurial Spirit

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Abstract

The low quality of vocational school graduates has resulted in the productivity of skilled workers in the industrial world getting worse. Indirectly, the quantity of SMK graduates absorbed is small, due to the distrust of the industrial world to SMK graduates so that the number of unemployed in Indonesia increases. *Implementation*Teaching factories in schools are expected to increase students' interest in the future because so far many vocational graduates have become workers compared to being entrepreneurs. The formulation of the problem in this research is how to implement the teaching factory learning model, the results of the implementation and teaching factory learning can increase the entrepreneurial spirit of students at SMKN 1 Semarang. The results of the study show that the application of teaching factory aims to provide work experience and impart skills to students. The process of service and repair services is carried out with a system of division of tasks. The marketing process is not yet optimal because there is no specific strategy to market services and products. The evaluation process has been carried out on an ongoing basis. The output obtained is that students are more confident and have an entrepreneurial spirit. The learning media used in the implementation of the teaching factory are in accordance with operational standards. Equipment and tools owned by SMK N 1 Semarang are adequate and well utilized, and in well-maintained condition.

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INTRODUCTION

The low quality of vocational school graduates has resulted in the productivity of skilled workers in the industrial world getting worse. Indirectly, the quantity of SMK graduates absorbed is small, due to the distrust of the industrial world to SMK graduates so that the number of unemployed in Indonesia increases. and environmental demands(Amar, Hidayat, & Suherman, 2016: 23).

The development of science and technology in Indonesia is currently growing rapidly(David, 2021: 253). Along with these technological developments, it is necessary to increase Human Resources (HR) in Indonesia. Efforts to grow and improve the quality of responsible Human Resources (HR) can be done through education. Education is a factor that plays a role in increasing human resources and increasing the intelligence of the nation(Achyanadia, 2016: 52).

Vocational secondary education is education that prioritizes the implementation of students' abilities to carry out certain types of work(Jaya, 2012: 13). Vocational High School graduates need to be equipped with entrepreneurial skills because not all Vocational High School graduates can compete in the industrial world. The increase in the number of graduates produced with the availability of jobs is still not balanced(Nurdina, Martono, & Sangka, 2019: 73). Currently, Vocational Schools are the center of attention of all groups, so it is time for Vocational Schools to rise and maximize their existing potential. The achievement of the success of vocational education includes being able to produce competent graduates who are ready to compete in the world of work, entrepreneurship and can continue on to higher education.(Uno & Nina Lamatenggo, 2022: 32).

Through Presidential Instruction No. 9 of 2016 concerning Revitalization of Vocational High Schools (SMK) in improving Indonesia's Human Resources (HR)(Pracihara, 2017: 313). Formal education or SMK seeks to be able to change the mindset of SMK graduates who are not only graduates ready to work but graduates who are ready to be entrepreneurial and independent. The implementation of the potential for SMK graduates is felt to be less than optimal because seen from SMK graduates there is still a low interest in becoming entrepreneurs(Vernia, 2018: 105–114).

The number of entrepreneurs in Indonesia in 2021 has increased by 3.1% from only 1.6% of the total population. This 3.2% figure has exceeded the 2% limit which is the standard indicator of economic progress. But on the other hand, this figure is still far below that of neighboring countries such as Singapore, Malaysia, Thailand and Vietnam.

Table 1.1 Data on the Number of Entrepreneurs

No.	Country	Number of Entrepreneurs
1.	Singapore	7%
2.	Malaysia	5%
3.	Thailand	4.5%
4.	Vietnam	3.3%
5.	Indonesia	3.1%

Source: Central Bureau of Statistics (BPS), 2021.

According to the Central Statistics Agency (BPS) in August 2022, graduates from Vocational High Schools occupy the highest unemployment. The government is developing vocational education in Vocational Schools with a teaching factory learning program with the aim of aligning what is taught in Vocational Schools with what is needed in the industrial world. The teaching factory is learning oriented to the industrial world which is the target of the learning processes and outcomes in SMK. With teaching factory learning, students can feel the real industrial atmosphere and get real experience about the world of entrepreneurship(Hasbullah, 2010: 95).

*Teaching Factory (TEFA)*is a learning concept that is oriented towards production and business to answer the challenges of current and future industrial developments. Teaching Factory (TEFA) is a learning model that brings an industrial atmosphere to schools so that schools can produce industrial quality products(Triyana & Aziz, 2016: 26). With the Teaching Factory (TEFA) learning process, students can learn and master skills and skills according to their respective

competencies which are carried out based on actual industrial work procedures and standards.(Muttaqien, 2020: 123). Products made by students as a learning process can also be marketed to the public so that the results can be used to meet school operational costs for learning practices. The application of teaching factory learning, the atmosphere of the learning process is designed as in a real industrial atmosphere. Learning from real experiences is expected to be much more meaningful and optimal in developing the potential of students(Rahayu, 2020: 112).

As an effort, this has not been supported by a teaching factory at SMKN 01 Semarang, which is not optimal, such as the use of its outlets as in a company that sells products and services to be served. So far, the teaching factory only sells it door to door, meaning sales are made directly. The relation in this case, if outlets are maximized, marketing is easier and people can see directly the results of products and services produced in production units. The application of teaching factories in schools is expected to increase the competence of students, so that in the future schools can produce competent workforce according to their fields. In addition to creating a competent workforce in their field, the teaching factory is expected to foster an entrepreneurial spirit for students, creating jobs on their own or by entrepreneurship is a success criterion of the teaching factory program. SMK plays a role in developing teaching factory activities, teaching factory as a learning platform that is able to arouse the entrepreneurial spirit of Ishom in Kuswantoro (5: 2014).

The purpose of this research is to find out the implementation of the teaching factory at Vocational High School 1 Semarang, among others, to describe the implementation, to explain the results of the implementation of the teaching factory learning model in increasing the entrepreneurial spirit of students at SMKN 1 Semarang.

RESEARCH METHODS

The method used in this research is descriptive research with a quantitative approach which aims to reveal something as it is. Erik Ade Putra (2015) revealed that descriptive research is not intended to test a particular hypothesis, but only describes what is about a variable. Quantitative research, many are required to use numbers, starting from data collection, interpretation of the data, as well as the appearance of the results. So it can be concluded that quantitative descriptive research in this study is to see, review and describe with numbers about the object under study as it is and draw conclusions about it according to the phenomena that appear when the research is carried out.

Tefa learning produces a product that has economic value and can foster the entrepreneurial spirit of students in Vocational High Schools to be better because it has gone through a process of critical, logical, reflective, metacognitive, and creative thinking in producing writing and accommodating teaching factory learning in the era of Society 5.0 . This research seeks to test the hypothesis of the state of the research object based on visible facts or as it is about the teaching factory-based project learning model (TEFA) in production units to increase the entrepreneurial spirit of students at Vocational High Schools in Semarang City.

There are 3 implementation components that need to be prepared for the implementation of TEFA, namely the work environment, products and learning processes (Fitrihana, Noor, 2018), including, 1) Structuring and improving the work/workshop environment according to industry. To carry out TEFA learning, it is necessary to revamp and arrange workshops in such a way as to resemble the work environment in industry. The layout of heavy equipment machines, work areas, production lines, work culture and work procedures are adopted from the industry. Industry partners are very important in creating a working atmosphere in the industry. In the implementation of TEFA SMK Neeri 1 Semarang on the competency skills of Heavy Equipment Engineering. 2) Products/services in TEFA learning are as an introductory medium to achieve a certain competency, so it's not just a product resulting from the utilization of existing facilities/infrastructure. For this reason, in

determining the product to be produced, it must consider the number of competencies that can be delivered through the product and the quality standards and value for the product (can meet internal or external needs). 3) TEFA learning can be carried out in 1 productive subject and/or with the collaboration of several subjects, even between competency skills, which will greatly depend on the complexity of the product/project being developed.

Descriptive research seeks to provide systematically and accurately the actual facts and characteristics of certain populations. Research only explains, describes, and describes objectively the data obtained. Descriptive analysis was carried out on the data that had been collected to obtain answers to the problems. The data analysis process was carried out interactively and continuously throughout the research process from the data collection stage to the end. In this study using two data analysis techniques. The interviews used interactive model data analysis techniques from Miles and Huberman, while the questionnaires used descriptive statistical data analysis. The data analysis steps in this study were carried out through an interactive model proposed by Miles and Huberman (Sugiyono, 2006).

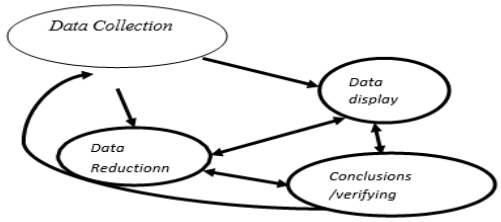

Figure 7. Components in data analysis: Miles & Huberman's Interactive Model (Sugiyono, 2006:338)

The descriptive data analysis used in this study covers several stages that function to measure the success rate of management in achieving the effectiveness and efficiency of the Teaching Factory Program for Mechanical Engineering Expertise at SMK Negeri 1 Semarang.

RESULTS AND DISCUSSION

In the implementation of Teaching Factory the achievement of students' skills is carried out through the implementation of production activities of both goods and or services, so that the determination of the type, variety and volume of production will affect the level of achievement of students' skills in carrying out production activities. The learning process with the teaching factory concept is a learning process that brings the business/industry environment into the school environment. Teaching factory is a learning concept in a real setting, so that it can bridge the competency gap between industry needs and school knowledge.

Innovative learning technologies and service and productive practices are research method concepts that are oriented to the management of students in learning so that they are aligned with the needs of the industrial world. Heavy Equipment Engineering at SMK N 1 Semarang has been carrying out teaching factory learning for about 5 years. Heavy Equipment Engineering at SMK N 1 Semarang is an expertise competency that emphasizes the field of Heavy Equipment Engineering in the management and operation of maintenance, repair, heavy equipment operator and heavy equipment rental services businesses and is able to develop a professional attitude in the field of maintenance, repair, operator services heavy equipment, and heavy equipment rental. Students are equipped with various skills, knowledge and attitudes to be competent in the field of heavy equipment operator services, heavy equipment rental, assembly.

From the results of the research, information can be obtained that in every implementation of the teaching factory there is a teacher who oversees the performance of each student so that the processing time is on schedule and not a lot of raw materials are wasted. The evaluation process at SMK Negeri 1 Semarang prioritizes process values by paying attention to assessment indicators. The criteria and benchmarks for success in implementing the teaching factory at SMK Negeri 1 Semarang are that students can work together well, can complete work within a predetermined

time, and the teaching factory learning target based on service and improvement units at SMK Negeri 1 Semarang provides benefits including making students have experience in order to prepare them in the world of work in the future and training students about the jobs they will face in the world of work. Besides that, it trains the entrepreneurial spirit of students by going straight into the field. Some of the services and products and services resulting from service unit-based teaching factory learning and repairs in the Heavy Equipment Engineering study program at SMK Negeri 1 Semarang, namely (1) heavy equipment operators, (2) heavy equipment maintenance, (3) operator training, (4) heavy equipment repair, (5) and heavy equipment rental.

The benefits in making service units and the resulting repairs make students have experience in order to be equipped in the future world of work and training students about the jobs they will face in the world of work. Besides that, it trains the entrepreneurial spirit of students by going straight into the field.

Visit of students from the Heavy Equipment Engineering Department to UT School. The purpose of the visit is to gain direct knowledge of the types of heavy equipment and components and their functions.

The results of this study are in line with the opinion put forward by Dikmenjur (2007) which states that the benefits of service and repair units in SMKs are as a source of learning for students. In addition, the benefits of the service and repair unit at SMK are as a source of education funding at SMK.ik from before.

Based on the results of the questionnaire instrument given to students regarding the implementation of service unit-based teaching factory learning and improvements in increasing the entrepreneurial spirit of students at SMK Negeri 1 Semarang Heavy Equipment Engineering, the results of a statistical descriptive analysis can be obtained as follows.

Table 4.1 Descriptive Statistical Analysis Results of the Entrepreneurial Spirit Questionnaire

Analysis	Results
Minimum Value	59
Maximum Value	89
Standard Deviation	5,281
Median	79
mode	78
The total value of all students	6353
The average (mean) value is obtained by students	78,43

Minimal Value Result Analysis 59The total value of all students is 6353. The average (mean) value obtained by students is 8.43. Source: Primary data, processed in 2023

Indicator	Total Ideal Score	Total Score Obtained	Means	%
Motivation to move forward	2025	1,523	18.80	75.21 %
Creative and innovative	3,240	2,571	31.74	79.35 %
Commitment	2,835	2,259	27.89	79.68 %

Ideal Total Score Indicator AmountScore Obtained Mean %Motivation to move forward 2025 1,523 18,875, 21%Creative and innovative 3,240 2,571 31.779.35% Commitment 2,835 2,259, 27.89 79.68%.

The results of the entrepreneurial spirit level of students at SMK Negeri 1 Semarang in the Department of Heavy Equipment Engineering based on the answers obtained from the entrepreneurial spirit questionnaire used descriptive statistical analysis. The scoring in this study used a Likert scale, with a range of scores between 1 to 5. The results of statistical descriptive analysis obtained the highest score of 89 and the lowest score of 59. In addition, the average result was 78.43, the median was 79. , the mode is 78, the std. deviation is 5.281, and the total score is 6353.

CONCLUSION

The implementation of teaching factory learning at SMK N 1 Semarang Heavy Equipment Engineering has been carried out in accordance with standard rules and in the use of lesson plans, the implementation involves students directly.

SMK N 1 Semarang has collaborated with several business and industrial worlds. The application of teaching factory aims to provide work experience and impart skills to students. The process of service and repair services is carried out with a system of division of tasks. The marketing process is not yet optimal because there is no specific strategy to market services and products. The evaluation process has been carried out on an ongoing basis. The output obtained is that students are more confident and have an entrepreneurial spirit. The learning media used in the implementation of the teaching factory are in accordance with operational standards.

The teaching factory learning model based on service and repair units at SMK N 1 Semarang Heavy Equipment Engineering generates passion and experience and trains students' entrepreneurial spirit.

Teaching factory learning requires careful preparation, because this learning studies the process of service and repair activities as well as the application of industrial culture. Teaching factory learning activities will be able to take place successfully and be successful if the process is carried out properly as is the standard for DU/DI.

Implementation of Teaching Factory in Vocational Schools is by establishing a business unit or company within the school. The application of teaching factories in schools is expected to increase the competence of students, so that in the future schools can produce competent workforce according to their fields.

The purpose of the service and repair unit is to train and facilitate students to maximize their talents and interests, as well as train students to be ready to compete in the business world. The teaching factory financing budget comes from the school budget and customers who order. The quality of services and products produced is quite good and able to compete with DU/DI in Semarang. The principles applied in the implementation of service and repair units are to make students independent by instilling an entrepreneurial mentality.

At SMK Negeri 1 Semarang, the service and repair unit aims to strengthen students after conducting street vendors in several companies in order to make students have an entrepreneurial mentality. In addition, it aims to train students and facilitate students to maximize the talents and interests of students and train students to be ready to compete in the business world and it is much better if students are able to do entrepreneurship.

The results of this study are in line with the opinion put forward by Dikmenjur (2007) which states that some of the objectives of the Service and Improvement Unit in Vocational Schools related to this research are (1) a vehicle for growing and developing the entrepreneurial spirit of teachers and students in Vocational High Schools, (2) developing independent attitude and self-confidence in carrying out students' practical activities, (3) training students not to depend on other people, and (4) developing an independent and confident attitude in carrying out students' practical activities.

Someone who has motivation for entrepreneurship will feel happy or like to take various actions related to entrepreneurship. Students who have high entrepreneurial motivation will try to do their best, students' understanding of entrepreneurship can increase and will have an entrepreneurial mindset so that it will support students' readiness for entrepreneurship.

This research is in line with research conducted by Nusuluddin Hamid (2008) in his research "The Entrepreneurial Readiness of Makassar State Vocational High School Students in the Automotive Engineering Expertise Program in Makassar City." The results of his research show that there is a positive and significant influence of motivation on entrepreneurial readiness with an effective contribution of 48.5%.

Furthermore, this research also supports the research of Jailani, Rusdarti, Sudarma (2017) research that examines "The Influence of Entrepreneurship Knowledge, Learning Motivation, Parents' Socio-Economy and Self-Efficacy on Entrepreneurial Interests of Vocational High School Students in West Waringin City". The results of his research show that there is a positive and significant effect of learning motivation on the interest in entrepreneurship of SMK students by 15.3%. The positive sign shows that the higher the

learning motivation of students, the higher the interest of students in entrepreneurship.

This research also supports Kepmendikbud number 0490/U/1992 article 29 paragraph 2 which states that: The purpose of the Service and Repair Unit is (1) to provide opportunities for students and teachers to do market-oriented practical work, (2) to encourage students and teachers in terms of developing economic insights and entrepreneurship, (3) obtaining additional funds for the implementation of education, (4) increasing the utilization of existing educational resources in schools, and (5) increasing the creativity of students and teachers.

The effectiveness of the development of the teaching factory learning model in increasing the entrepreneurial spirit of students at SMK Negeri 1 Semarang Heavy Equipment Engineering greatly motivates students to progress, be creative and innovative, and have a commitment to have a fairly high percentage. Which describes an increase in the entrepreneurial spirit of students with the development of a teaching factory learning model based on service and repair units.

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