

Development of teaching factory learning models in vocational schools

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Abstract. Vocational education has an important role in the effort to create a workforce that has competencies that are in accordance with the characteristics of the needs of the industrial world. The learning process that emphasizes mastery of specific competencies requires an appropriate learning model. Teaching factory model is one of the solutions to prepare students to have competencies that are in accordance with the needs of industrial competence. Learning teaching factory developed can be integrated into the production unit organized by the school. This study is a literature study that reviews the development of teaching factory models in vocational schools. The results of the discussion concluded that teaching factory development was the main point where the process included the formation of management, production processes, marketing processes, and evaluation processes. Teaching factory developed is integrated with the production unit for the implementation of students practices.

1. Introduction

The process of implementing learning in vocational education is generally carried out by applying learning in the form of theory and practice. Learning theory and practice activities are part of the teaching and learning process. Implementation of learning practices in vocational schools uses training and development of work practices in industry. The Program is organised so that the relevance and sustainability of the learning process can be maintained. Vocational education emphasizes the achievement work competence that permissible students have to become competent graduates and ready to enter the world of industry.

Vocational education trains The learners to be skilled and able to meet the demands of certain competencies. The purpose is found in law No. 20 of 2003 on the national Education system of article 15, which mentions the special purpose of SMK is to prepare students to become productive, able to work independently, fill job openings That exist in the business world and the industry as a middle-level workforce according to the competence in the chosen expertise program. One effort to realize that goal is to improve the quality of learning.



Vocational High School (SMK) both state and private are demanded as a container for the establishment of learners have the ability of soft skills, hard skills and good entrepreneurship. SMK is expected to improve the quality of the learning process that is superior and competent especially in the field of practice. Competencies that students have gained at the time of learning can be as optimal as possible in the workshop. However, in the process of implementing learning often there is a discrepancy between theories obtained by the process of practice. Even the results that have been learned in school both theory and practice differ from the conditions in the workforce.

According to Kuswanto (2014), teaching factory is the concept of learning in the real state to bridge the competency gap between the knowledge given by the school and the needs of the industry. Teaching Factory is the development of the production unit which is an implementation of the industrial partner system in the existing production unit at the Vocational School. Production units are the development of the school business in addition to adding school income that can be used in the effort to maintain equipment, increase human resources, etc. also to provide a truly real work experience to their students. The application of the production unit itself has a legal basis namely government Regulation number 29 year 1990 article 29 paragraph 2 ie "To prepare students of vocational high school to be labor, at a vocational high school can be established professionally managed production units".

The Teaching factory implementation is not detached from the various problems encountered. Therefore, efforts to overcome various problems and efforts of quality development of SMK that is part of the vocational program should be conducted an evaluation of the teaching factory. Through this evaluation it is expected to discuss how the process of implementation in the learning activities, obstacles and displacemen faced during the implementation process, and what things should be repaired and improved in the process Implementation of teaching factory. The process of implementing a teaching factory is to integrate the concept of vocational education and business in accordance with the competency of relevant skills, at the teaching factory at SMK.

2. Theoretical basis

2.1. *Teaching factory*

Stated that the teaching factory concept was discovered because three factors were [1]: (1) The usual learning was not enough; (2) Student benefits gained from the experience of direct practice; and (3) experience, team-based learning involving students, teaching staff and industry participation enrich the education process and provide tangible benefits to all parties. Then according to the basic principle of tearning factory is integrating the experience of working world into the school curriculum. All equipment and materials and educational actors are prepared and designed to perform the production process in order to produce products (goods or services).

Revealed that in the teaching factory, the school carries out production activities or services that are part of the teaching learning process [2]. Thus the school is required to have a factory, workshop or other business unit for the learning activities. Then in his research stated that, teaching factory is a learning activity by conducting production activities either in the form of goods or services in a school education environment by students [3]. Goods or services produced by the students have the quality so it is worth selling and accepted by the community or consumers. The results of profit earned are expected to increase the source of income for the school that is useful for the sustainability of educational activities. Teaching Factory presents the real world of industry/work in a school environment to prepare ready-to-work graduates.

The purpose of teaching factory learning is that teaching students should be more than just what is in the book. Learners not only practice soft skills in learning, learning to work in teams, practicing interpersonal communication skills, but also gaining direct experience and working exercises to enter the workforce. Teaching Factory learning teaches students how to find problems, build prototypes, learn to make business proposals, and learn to present their own solutions. The teaching factory learning process is learning about the skills that are important to master, such as how to meet the level of time and allegations that may arise, build and work in teams and cooperate with Diverse people who have diverse abilities and talents.

2.2. Vocational education

According to said that the aim of vocational high school is to prepare, choose and put prospective workers in accordance with the market signs of employment [4]. Unlike the opinions of Fajar Hendra Utomo, according to government regulation No. 29 year 1990 Article 2 paragraph (1) mentions that vocational schools aim to increase students' knowledge in self development and to improve their skills Students as community members. According to government regulation No. 24 of 1990 Article 3 paragraph (2), it is mentioned that vocational schools aim to prepare students in fulfilling employment, prepare students to be able to have a career, and prepare the investigation to be a productive, adaptive, and normative citizen. In general, the purpose of vocational school is to equip graduates with useful competencies for self-esteem in career and community life. The aim of vocational high school will be more directed if the curriculum used is appropriate and well implemented.

3. Discussion

3.1. The purpose of vocational education

Learning Teaching Factory is a concept of learning in SMK based production/services that refers to industry standards and procedures, and implemented in an atmosphere as it happens in the industry. Teaching Factory combines learning and realistic work environment and brings out the relevant learning experience. It is appropriate to the characteristics of vocational education as mentioned namely [5]: (1) Prepare learners to enter employment field; (2) based on the needs of the world "demand-market-driven" work; (3) Mastery of competencies that the world needs; (4) The success of students on "hands on" or performance of the workplace; (5) Close relationship with the working world; (6) Responsive and anticipatory to technological advances; (7) Learning by doing and hands on experience; (8) Require greater investment and operational costs than general education.

Teaching Factory integrates the learning process to produce products and services that are worth selling to produce added value for the School Directorate of vocational Development. This means that the teaching factory can instill an entrepreneurial spirit for students. Through teaching factory process produce goods and services that have value added with quality that can be absorbed and accepted by the community. According to that the use of teaching factory is for two-way communication between academics and industry. The teaching factory paradigm provides a real life environment for students and researchers to develop their skills and understand the challenges faced in everyday industry practice. Then with the benefits of SMK in collaboration with companies industry can place students in learning according to the world industry.

The implementation of the teaching factory model blends completely between study and work, no longer separates between the place of delivery of theoretical material and the place of production material (practice). This indicates that through learning, in addition to

obtaining the competencies expected to produce goods and services. While the form of the teaching factory organization demonstrates the nature of the company, the teaching staff is a professional group in the field of education that is expected to fulfill the needs of the community on products and services in accordance with the group SMK.

3.2. Development of teaching factory models

3.2.1. Establishment of teaching factory management

Think management is a real process consisting of planning, organizing, implementing, and supervising that is done to determine and achieve a goal by involving humans and resources Other power [6]. Essentially the basic functions of management include, planning, organizing, actuating, and controlling. In its implementation, management has special functions that are used as reference in the establishment of management [7]. These functions are explained in the process of forming management as follows:(1) plan, the manager uses logic and methods to think about the objectives and actions. (2) Organizing, the manager regulates and allocates the work, authority, and resources to achieve the goal. (3) Lead, the manager directs, affects, and motivates each section to perform an important task. (4) Controlling, the manager ensures that each section moves towards the planned goal.

In the research of revealed that the establishment of a teaching factory management is implemented by forming a structure of small scale production management organization according to the organizational form that exists in the company. Students are divided into several parts that have their own duties. Each section has a coordinator in charge of coordinating the students who are the staff in the section. Each has a responsibility and there should be no gap between parts. The teachers here act as consultants, assessors, and facilitators. Teaching factory has significant influence on the students' occupational readiness [8]

3.2.2. Production process

The teaching factory production process is carried out after a demand from consumers who need product produce. The request goes to the Management Section to be consulted to the teacher. Once the appropriate is consulted, the request goes to the Administration section to know the cost of production and profit. Then the request goes into the production section to be immediately followed up. During the production process, each section performs supervision over the work in order to avoid errors. Once the production is finished, the product is inspected by each section and entered in the final stage. Products that have been so then examined by the teacher and if there is no problem, the production is deemed finished.

3.2.3. Marketing process

The finished product is re-examined by each section to suit the demand and quality standards. The marketing section will sell the product according to the agreed agreement. Products produced on request must be adjusted to consumer demand, whereas non-consumer demand products are marketed generally through the marketing section. Each sold product should be reported to the manager through the administration .

Marketing of products should be done with the right strategy so that the products to be marketed can be attracted by consumers. There are four areas of marketing strategy in the planning, which include marketing decisions that will change the basic idea of the product, the promotion decision that will communicate the necessary information on the destination market, the distribution decision on Delivery of products to consumers, and acceptable price decisions by consumers.

3.2.4. Evaluation process

The evaluation process is implemented against the performance of each section. Teachers as consultants provide assessments to each section before the overall evaluation. The evaluation was used as a benchmark for student work success. This assessment can be known by the ability of students to perform their work. Some of these stages, is a general representation of the process of implementing a teaching factory in schools. Everyone involved in the teaching factory is sued professionally and responsible for the work he does. Thus, teaching factory can run both in terms of education and business terms.

From the above description, it is summarized that the teaching factory implementation is the implementation of a school learning program based on production and business so that students get real skills and work experience according to the demands and industrial needs. Through teaching factory, students are faced with the real working conditions so that they can produce quality products or services for sale to the community. Thus, the implementation of teaching factory can be reviewed from the following aspects: (1) competency standards; (2) the establishment of management; (3) Students; (4) Learning Media; (5) Use of equipment and equipment; (6) Teachers; (7) Production process; (7) Product marketing; and (8) evaluation of implementation.

4. Conclusion

Teaching Factory is an industry-based learning system that utilizes a production unit as a place to run a business or production process. The teaching factory development is the main point where the process includes the formation of management, the production process, the marketing process, and the evaluation process. Teaching Factory is developed integrated with production units for the implementation of students ' practices.

5. References

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