

Design of Entrepreneurship Learning Model with Teaching Factory Method to Improve Student's Competencies

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Abstract—The purpose of this study is to design a teaching factory learning model in Vocational Higher Education ". This research is a literature study. This study was conducted at Polinema Bakery. The stages of the study are as follows: (1) review the literature; (2) Carrying out a survey of the bakery industry; (3) designing an entrepreneurial learning model using the teaching factory method; (4) determine the target model of teaching factory learning model; and (5) describe the entrepreneurship learning model with the Factory teaching method. The results of the study are 6-step Teaching Factory learning models, namely: (1) receiving orders, analyzing orders, stating readiness to work on orders, working orders, carrying out quality control, and delivery orders. Results of the study show that students feel happy following the learning, obtaining a picture of the business, getting experience producing products, working in team, and experience managing a business.

Keywords—*entrepreneurship education, learning model, teaching factory, vocational higher education*

I. INTRODUCTION

All countries in the world acknowledge that the development of entrepreneurial talent can increase the number of entrepreneurs. The increase the number of entrepreneurs can drive economic growth to be higher [1]. Entrepreneurship creates jobs for themselves and job seekers. The greater the number of entrepreneurs, the greater the number of job opportunities available in the labor market, so that the unemployment rate decreases and the people's purchasing power increases. This condition has a positive impact on the economic growth of a country.

The proposed Act of Indonesian Republic No. 21 concerning national entrepreneurship states that The National Entrepreneurship Movement functions as a forum fostering entrepreneurship mentality and increase the number of entrepreneurs and social entrepreneurs in Indonesia. Therefore, the Government through the Ministry of Education and Culture encourages an increase in the number of students

entrepreneurial through the creation of entrepreneurial programs, including: Indonesian Student Business Competition, Student Business Innovation Competition and Vocational Student Creativity Program.

Differences in opinion about entrepreneurial characteristics, whether born or created through education. It is generally acknowledged that there are entrepreneurs born naturally, but other researchers say entrepreneurial characteristics is a learned skill. Cooney [2] review the literature, suggests that people who want to become entrepreneurs must have entrepreneurship skills-set: Entrepreneurship skills, Technical skills and Management skills. Entrepreneurship skills include: inner discipline, ability to Take Risk, innovative, change-orientated, and persistence. Technical skills consist of: operations specific to industry, communications, design, research and development, and environmental Observation. Management skills include: planning, decision-Making, motivating, marketing, finance, and selling. To be able to have these three skills, effective learning is needed.

Law Number 20 of 2003 concerning the National Education System, Article 1 paragraph 20 defines learning as a process of interaction between students and educators and learning resources in a learning environment. Komalasari [3] defines learning as a system or process of teaching students or learners that are planned or designed, implemented and evaluated systematically, so that students / learners can achieve learning goals effectively and efficiently. Based on this definition, learning can be defined as the process of learning students who are designed, implemented, and evaluated systematically using learning resources, so that students can achieve learning goals effectively and efficiently.

Lecturers as educators must have the ability to choose a learning approach that is tailored to the needs and conditions of students. According to Komalasari [3], the learning approach can be interpreted as a starting point or our point of view towards the learning process, which refers to the view of the

occurrence of a process that is still very general in nature, in which it accommodates, inspires, strengthens and provides a basis for learning methods with certain theoretical coverage. Meanwhile, Dimiyati and Mudjiono [4] state that the learning approach is grouped based on student organization and teacher positions in message management. Grouping learning approaches based on organizing students include: (a) individual learning approaches, (b) group learning; and (c) classical learning.

Meanwhile, the learning approach used by SN-Dikti is a student centered learning (SCL) approach. Learning with this approach or paradigm is carried out in various forms of learning, learning methods, and student assignments. Furthermore, several learning methods that can be used in the learning process include group discussions, simulations, case studies, collaborative learning, cooperative learning, project-based learning, problem-based learning, or other learning methods.

Teaching factory is a means of learning for students to gain competence in accordance with real situations in the industry. Agung [5] defines teaching factory as a concept of learning in a real situation to bridge the competency gap between the knowledge provided by schools and industrial needs. Lamancusa et al. [6] argue that the teaching factory concept was born for reasons: (1) ordinary learning is not enough, (2) learners gain from direct practical experience, and (3) a team-based learning experience involving students, teaching staff and industry participation enriches the educational process and provides tangible benefits to all parties. Furthermore, Hidayat [7] states that the Teaching Factory-6M learning model in one work cycle consists of six steps, namely: receiving orders, analyzing orders, declaring readiness to work on orders, working on orders, performing quality control, and submitting orders. The Teaching Factory learning model aims to provide competence to students in accordance with real situations in the industry. So it can be concluded that the implementation of teaching factory method is very efficient in improving the entrepreneurial skills of students.

The results of previous research stated that entrepreneurial characteristics can be grown and developed after attending entrepreneurial education. Gorman et al. [8] stated that entrepreneurial traits are positively influenced by education programs. In 2019, researcher and the team examined changes in the students' entrepreneurial characteristics after being directly involved in business practice at the teaching factory bakery. The results showed an increase in the entrepreneurial characteristics of students after participating in business practices. These entrepreneurial characteristics include: internal locus of control, need for achievement, willingness to take risks, creativity, social networking, and tolerance for ambiguity. Furthermore, Sutianah [9] states that the implementation of the 6-step teaching factory model in developing entrepreneurial characteristics in the creative fashion industry can improve students' soft skills.

Kutzhanova et al. [10] stated that the six-step teaching factory learning model, namely accepting orders, analyzing orders, declaring readiness to work on orders, working on orders, performing quality control, and delivering orders effectively increases student productive competence. That is, the teaching factory learning model can improve entrepreneurial skills, technical skills, and managerial skills. Entrepreneurial Skills involve recognizing economic opportunities and acting effectively on them; technical skills are those skills necessary to produce the business's product or service; managerial Skills are essential to the day-to-day management and administration of the company [11].

Student' entrepreneurial competencies need to be continuously built and developed so that graduates have an entrepreneurial spirit and in the long run can realize government programs, namely increasing the number of entrepreneurs in Indonesia. To achieve this goal, universities need a learning model that can improve student entrepreneurial competences.

Based on the description above, the purpose of this study is to design an Entrepreneurship Learning Model with the Teaching Factory Method to Improve Student competencies.

II. METHODS

This research is a literature study, examines the teaching factory learning model design to improve student competence. The research stages were as follows: (1) reviewing the literature on the concept of entrepreneurial education and teaching factory methods; (2) survey of the bakery industry to obtain an overview of the bakery business; (3) designing an entrepreneurship learning model with the teaching factory method; (4) describing the entrepreneurship learning model using the Teaching Factory method.

III. RESULTS AND DISCUSSION

The results of a literature review on the skills needed to become entrepreneurs are as follows:

Cooney [2] stated that people who want to become entrepreneurs must have entrepreneurship skills-set: Entrepreneurship skills, Technical skills, and Management skills (Figure 1).

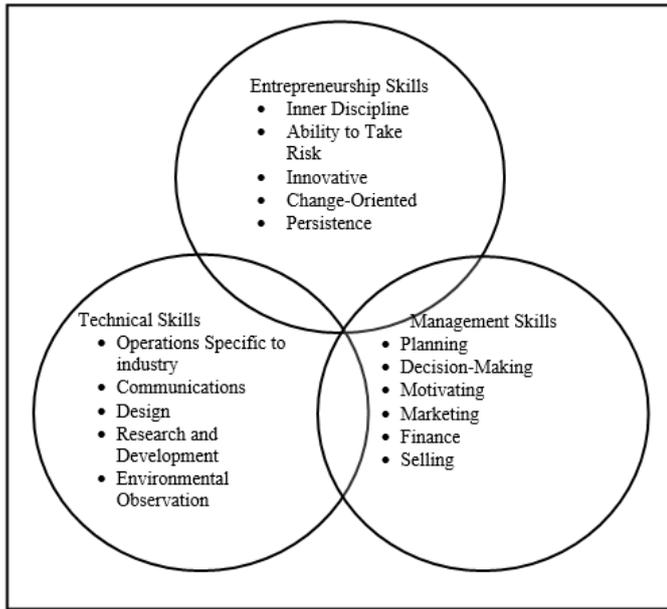


Fig. 1. Entrepreneurship skill-sets.

Then, Direktorat Pembinaan SMK [12] identified four main dimensions of skill:

- Technical Skills, which are those skills necessary to produce the business’s product or service;
- Managerial Skills, which are essential to the day-to-day management and administration of the company;
- Entrepreneurial Skills, which involve recognizing economic opportunities and acting effectively on them;
- Personal Maturity Skills, which include self-awareness, accountability, emotional skills, and creative skills.

Based on the above explanation, to start a business, someone must have three competencies, including entrepreneurial skills, technical skills, and management skills.

The results of a review of the teaching factory learning method are as follows:

Hidayat [7] stated that the teaching factory concept was born for reasons: (1) ordinary learning is not enough, (2) learners obtain direct practical experience, and (3) Team-based learning experiences involving students, teaching staff and industry participation enrich the educational process and provide tangible benefits for all.

Several definitions of teaching factory are as follows:

Teaching factory is an approach that combines learning and a realistic work environment and give relevant learning experiences [12]; Teaching factory integrates the learning process to produce products and services that are worth selling to produce added value for schools [13]; Teaching factory is a learning concept in real circumstances to bridge the competency gap between the knowledge provided by schools

and industry needs [5]; Teaching factory is a combination of competency-based and production-based learning approaches, where the practical learning process is carried out resembles a practical process carried out in the real world of work by holding production or service activities in the school environment [14]. Based on several definitions of teaching factory mentioned above, this research refers to the definition of teaching factory by Nurtanto, Ramdani and Nurhaji.

Furthermore, the results of previous research on the relationship between the teaching factory learning model and the competence of students are as follows:

Nanyang Polytechnic [11] stated that the teaching factory model is six steps, namely receive order from consumer, analyzing orders, declaring readiness to work an order, doing orders, performing quality control, and delivery orders effectively increasing student productive competence; Risdiana et al. [15] stated that the hard skills of students in doing orders service and doing quality control had increased after using the 6 Step Teaching Factory learning model; Gorman et al. [8] stated that focus group discussions (FGD) that production teachers believe that the TF-6M model can be used to improve student competence. Data from students show that the TF-6M Model improves student competence, students like the model, increases time spent at work, and improves soft and hard skills, motivation, sense of responsibility and work ethic; Risnawan [14] stated that the application of teaching factory provides provisions for being involved in industry, the trust of DUDI, and the output is well absorbed by the industrial world.

As previously explained, to become an entrepreneur, someone must have a number of entrepreneurial skills and the results of previous research’s explained that the teaching factory 6 M learning method can increase the competence of students.

This study implements the teaching factory 6 M learning model at Polinema bakery. The Teaching Factory learning model includes 6 stages, namely: receiving orders, analyzing orders, declaring readiness to work on orders, working orders, performing quality control, and delivery orders.

A. Receiving Orders

At the stage of receiving orders (Figure 2), consumers place an order for bread toward the cashier. The forms used are the order form and the bakery catalog. The parts involved are consumers and cashiers.

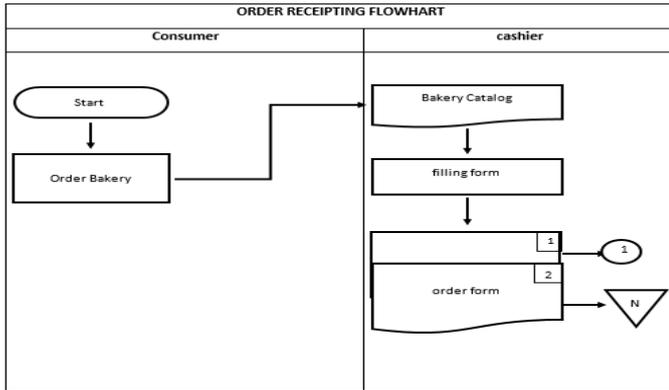


Fig. 2. Receiving orders.

B. Analyzing Orders

The production team receives an order form from the cashier, then the production team analyzes the order. Can it be implemented or not? The analysis was carried out on the availability of raw materials, direct labor, and time. The forms used are order form, bakery catalog, recipe book, inventory form, labor form, and overtime work form. The parts that are involved in the order analysis stage are the cashier, the production department, and the cashier (Figure 3).

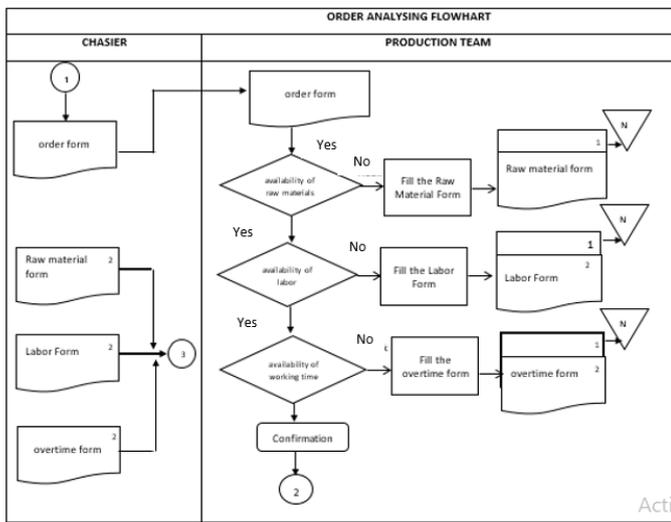


Fig. 3. Analyzing orders.

C. Declaring Readiness to Work on Orders

At this stage, the cashier receives confirmation of the readiness of processing orders from the production team, and send information the readiness of processing orders to consumers (Figure 4). Furthermore, consumers make payments to the cashier. The cashier provides receipts to consumers as proof of payment and an order form.

Furthermore, the cashier purchases raw materials from suppliers, and receives raw materials and proof of payment from suppliers. In addition, the cashier also looks for additional

workers and calculates additional working hours. At this stage the required forms include an order form, a receipt for payment of orders from the cashier, and a receipt for payment of raw materials from the supplier. If the requirements for raw materials, labor, and processing time are available, confirm with the production team. The parts involved in this stage are cashier and supplier.

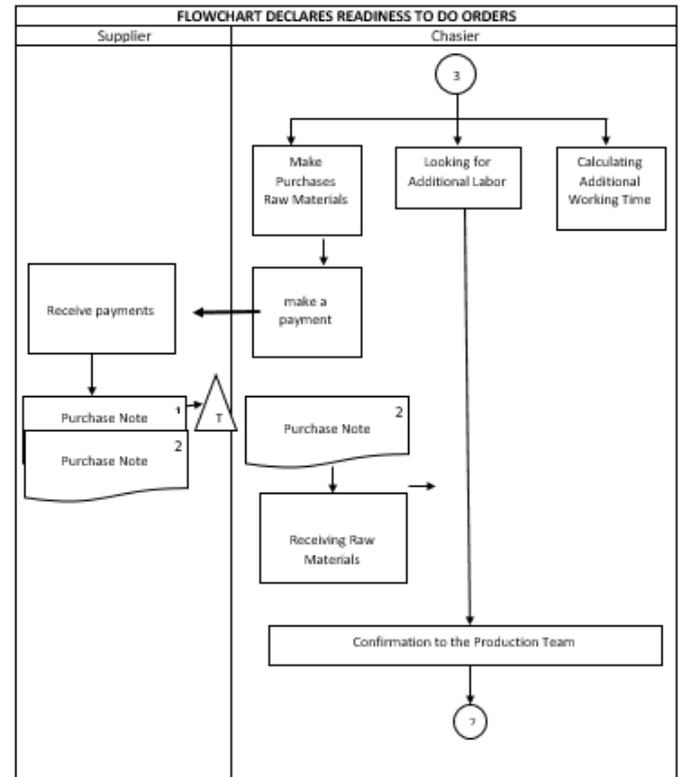
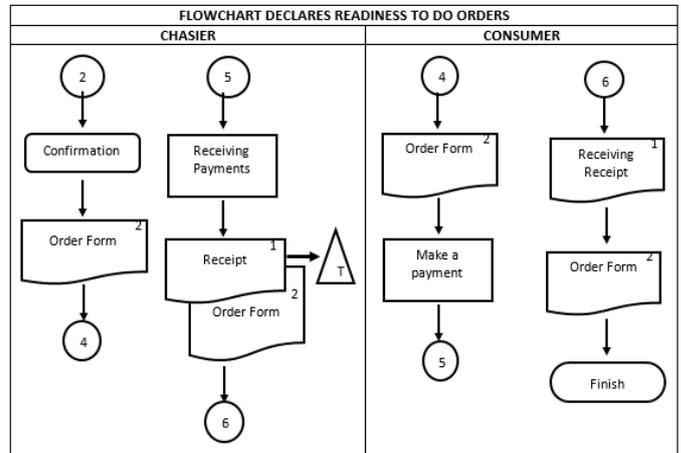


Fig. 4. Declaring readiness to work on orders.

D. Working on Orders

At this stage, the production team prepares raw materials and production equipment to start working an orders (Figure 5). The production process begins with weighing the raw

materials according to the recipe, making the dough, initial fermentation, rounding the dough, filling and forming dough, final fermentation, topping, baking, and cooling. The forms required include an order form, a recipe book, and a production process procedure book. The part involved at this stage is the production team, namely the production workforce.

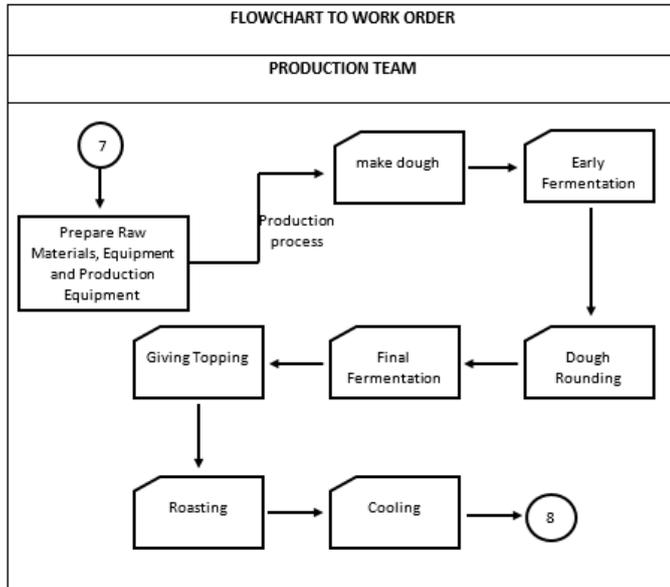


Fig. 5. Working order.

E. Performing Quality Control

The production team conducts bakery quality control (Figure 6). Tests include texture, taste, and the appearance of the bakery appropriateness. When it passes the quality test the bakery is ready to be packaged. Forms required are: order form, recipe book, and production logbook. The part involved is the production team.

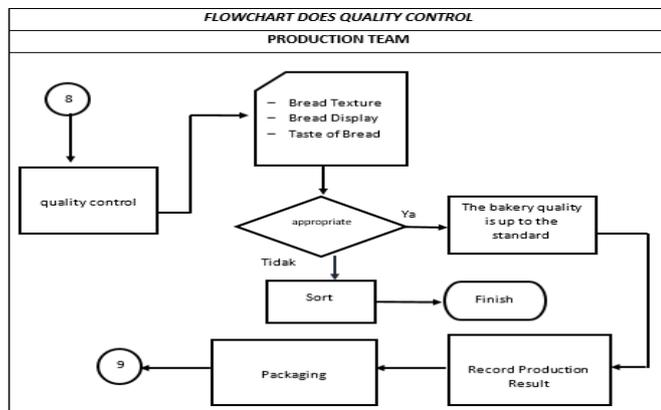


Fig. 6. Performing quality control.

F. Delivery Order

The cashier receives confirmation from the production team that the order has been completed and is ready to be delivery (Figure 7). Then, the cashier delivery the order to the consumer and the consumer receives the product and makes a payment or settlement to the cashier. Next, the cashier makes 2 copies of sales notes (1 is given to consumers and 1 is for archives) and makes a sales report. The forms used are: sales note, proof of delivery of orders, and sales reports. The parts involved are cashier and consumer.

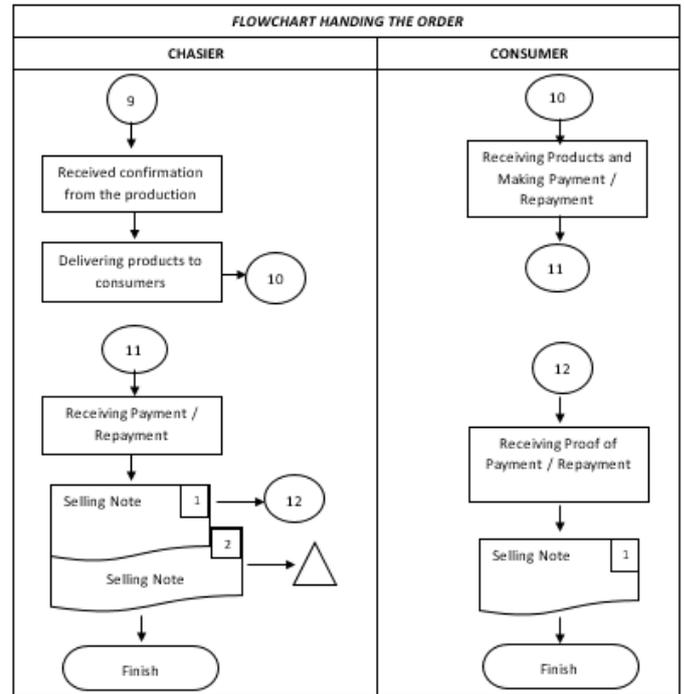


Fig. 7. Delivery order.

IV. CONCLUSION

The teaching factory learning model provides opportunities for students to learn in real conditions according to industry. The simulation results of the 6-step teaching factory learning model showed that students feel happy following the learning, obtaining a picture of the business, getting experience producing products, working in teams, experience managing a business. The teaching factory learning model can improve student entrepreneurial skills, thereby increasing student competence to start new businesses.

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