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The Implementation of Teaching Factory to Improve Student Interest in Entrepreneurship at Multimedia Competencies

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Abstract: This research is motivated by the unemployment rate of SMK graduates, especially in Central Java, which still dominates, according to the researchers' observations, one of which is because almost all SMK graduates are more interested in becoming employees/working in factories rather than entrepreneurship. To reduce unemployment and change the views of SMK graduates, especially in the Blora district, about entrepreneurship, there needs to change. One of them is how implementing a teaching factory in vocational schools that involves entrepreneurship teachers not only produces creative product work or recognized competency achievements but can also foster students' interest in entrepreneurship. Respondents in this study were XI students of multimedia expertise competency. This study aims to analyze the teaching factory concept, the implementation of teaching factory at SMK Muhamamdiyah 1 Blora to foster entrepreneurial interest in students of Multimedia Skills Competency (KK Multimedia) and to describe student interactions in teaching factory learning, as well as supporting and inhibiting factors for teaching factory at SMK Muhammadiyah 1 Blora. This research is descriptive qualitative research. The method used is a case study, where the researcher explores the subject's events, processes, and activities. Data collection techniques use multiple sources of evidence, namely, in-depth interviews with structured models, frank or subtle observation, and documentation. From the results of the study, it can be concluded that: 1) the teaching factory model applied in KK Multimedia is a model with industry-based learning concepts (products and services) so that the student's interest in entrepreneurship and graduates will be more skilled and fit for work in the industrial world. Adequate facilities and infrastructure, competent human resources in their fields, and Human resources who are competent enough in their fields, as well as the SOP (Standard Operating Procedure), applied in schools is the same as that applied in the industrial world, 2) through the production process in implementing KK Multimedia's teaching factory, namely: receiving orders, analyzing orders, declaring ready to carry out orders, working orders, do quality control, submit orders and the involvement of entrepreneurial teachers is effective in fostering student interest in entrepreneurship; 3) almost all KK Multimedia students support and are directly involved in the process of implementing the teaching factory by preparing and using practical infrastructure and students' enthusiasm in finding their consumers; 4) supporting factors in the teaching factory implementation, namely: a) costs/funds sourced from Central Government Assistance, Regional Government and funds from school committees; b) supporting equipment even though the use of tools has not been applied to one student for one tool; c) workplace products are industry standard, namely in collaboration with Axioo. Meanwhile, the inhibiting factors for implementing the teaching factory include a) product marketing, which still needs to be improved in the community; b) communication between students and consumers must be smoother and more flexible; and c) competence and interests of the students.

Keywords: Implementation, teaching factory, entrepreneurship interests, multimedia

1. Introduction

Many Vocational High School (SMK) graduates in Indonesia are less interested in creating jobs; they are very dependent on the availability of jobs in the industrial world (DUDI), which causes a high unemployment number in

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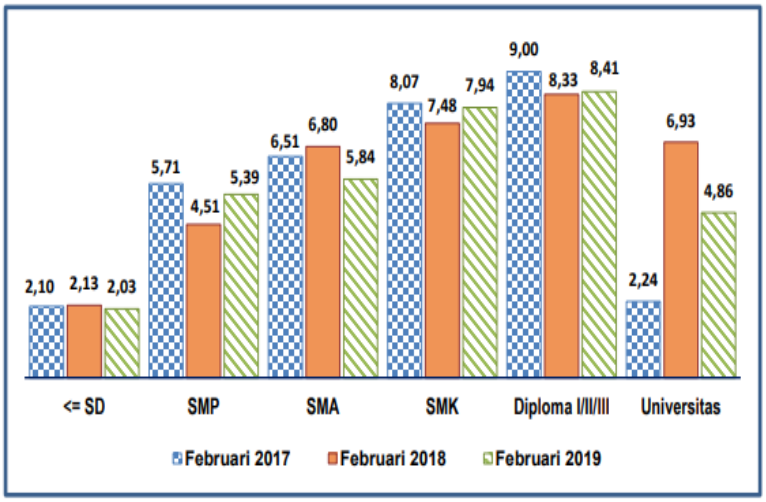
Indonesia. This is reinforced by the survey result (Rosique-Blasco et al., 2018), which explains that only 10% of 80 SMK students are interested in entrepreneurship, 29% continue their studies, and 61% want to become employees.

Meanwhile, the data from Central Java Province Statistics Agency (BPS, 2019), which the Ministry of Manpower processed, shows that the open unemployment rate (TPT) from 2017 to 2019 has decreased. However, the unemployment rate for Vocational School graduates is still dominant after a Diploma graduate. Based on BPS data, it can be seen that government policies related to job creation have been quite successful in reducing the unemployment rate, but is seen from the level of education in February 2019 as shows in Fig. 1, TPT for Diploma majors is still high at 8.41%, the next sequence of TPT is Vocational School graduates by 7.94%. It shows that unemployment for Vocational School graduates in Central Java is still quite large.



Sources: Data processed from Sakernas February 2017-2019

Fig. 1: The highest level of education completed

The high unemployment rate for Vocational School graduates as above implicates the evaluation of educational programs; those are: 1) vocational School apprenticeship program has been revised several times by the demands of the business and industrial world (DUDI), but in reality, it is still lagging behind the world of work (Safitri, 2018). This situation is due to the lack of school facilities, especially practical equipment that are still very lack, so students do not fully practice based on the practical curriculum at SMK or the collaboration between SMK and the business and industrial world (DUDI) which during the memorandum of understanding (MoU) has not been implemented (Woldetsadik & Lumadi, 2015); 2) entrepreneurship program, one of the causes of the high unemployment rate for Vocational School graduates is the ineffective learning of entrepreneurship (Santoso, 2015). If entrepreneurship learning goes well, it is hoped that students can create their job fields (Wang & Chugh, 2014). Among the reasons for the ineffectiveness of entrepreneurship learning is the tendency of this subject to have a larger theoretical portion and less practical aspects (Santoso, 2015) and 3) teacher professionalism. Asmawati (2017) said in his research that the problems that often arise in learning entrepreneurship are that teachers still need to use learning strategies to improve learning quality. The objectives of entrepreneurship learning can be achieved if entrepreneurship teachers have various teaching skills, that is, applying various strategies in the learning process. A teacher is expected to be able to develop teaching materials that are suitable for current knowledge developments. Because so far teachers still use monotonous learning methods or models (Antasari & Subali, 2019). With understanding and mastering the teaching skills, teachers are expected to be able to improve the quality of the learning process because entrepreneurship learning is not only through theory but also through learning practices (Wang & Chugh, 2014).

SMK Muhammadiyah 1 Blora is one of the Vocational Schools that has implemented teaching factory learning. Teaching factory learning at SMK Muhammadiyah 1 Blora has been implemented since 2012, while multimedia expertise competency has only been implemented in the last two years. Therefore, researchers will conduct research to obtain information about implementing the teaching factory applied at SMK Muhammadiyah 1 Blora, especially the competence of multimedia expertise.

Preliminary research found that productive teachers of each skill competency still dominated the implementation of TEFA at SMK Musaba. As with the description explained above, this problem is because SMKs need more confidence in entrepreneurship teachers in managing TEFA. Productive teachers, especially those with multimedia expertise competencies, do not have internship experience at DUDI, so the competencies taught are outside the competency needs in DUDI itself. Productive teachers think that their current expertise is sufficient to provide teaching about TEFA activities, so that productive teachers only provide knowledge and skills according to their abilities, no longer seeing the development of DUDI needs. Students also have yet to be fully involved in implementing the TEFA. Besides, the implementation of TEFA has yet to provide motivation effectively to students in entrepreneurship, and this

can be seen from the list of graduates of the skill competency Multimedia of SMK Muhammadiyah 1 Blora as shown in Fig. 2.

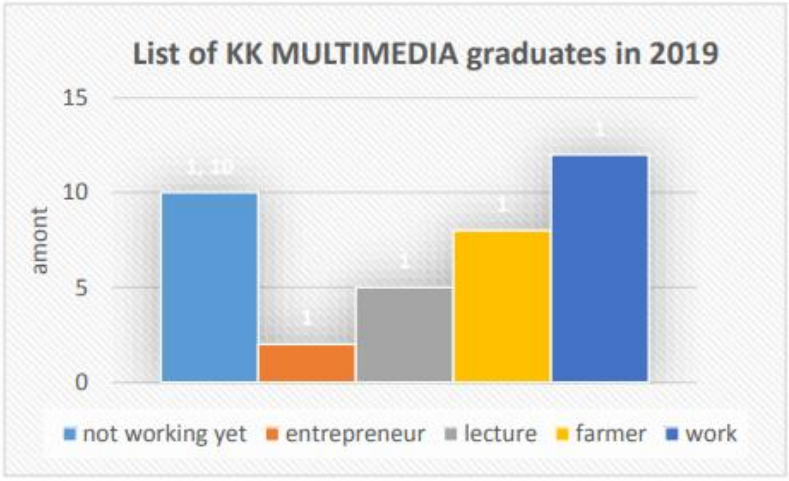


Fig. 2: List of student skill competency multimedia in 2019

The list above shows that of the 37 multimedia graduates who have not / are not working, there are 10 people: 2 (Two) entrepreneurs, 5 (Five) studying/continuing to Higher Education, and 8 (Eight) farmers. In contrast, those who work in factories/companies are 12 people. Fig. 2 proves that students' interest in entrepreneurship in multimedia skills competencies has yet to grow. This is due to the need for more information and socialization from the SMK about the importance of building entrepreneurship from an early age.

Based on the description above, several problems can be identified in the research, including: 1) most vocational school graduates are less interested in creating their own jobs and are still dependent on employment in Business and Industrial World (DUDI); 2) vocational school graduates are still at the top of the open unemployment rate for workers in Indonesia; 3) productive teachers of multimedia expertise competence do not have apprenticeship experience at business and industrial world (DUDI) so that the competencies taught are not in accordance with the competency needs of the business and industrial world (DUDI); 4) teachers have not used learning strategies that can improve the quality of learning; 5) the implementation of TEFA has not been able to increase the entrepreneurial interest of SMK graduates; 6) students have not been fully involved in the TEFA learning at SMK; 6) the link between the implementation of TEFA and the entrepreneurial interest in the SMK has not been able to run effectively; and 7) the implementation of TEFA has not been able to provide motivation for students in entrepreneurship.

This research is important to foster student interest in entrepreneurship class IX skill competency Multimedia according to their competence through the stages of the teaching factory implementation process with the involvement of entrepreneurship teachers. The formulation of the problem in this study is the teaching factory concept, such as what can foster interest in entrepreneurship, how the implementation of the teaching factory program and student interaction in TEFA learning can foster interest in entrepreneurship, as well as supporting and inhibiting factors in implementing teaching factory at SMK Muhammadiyah 1 Blora. The purpose of this study was to 1) analyze the teaching factory concept that can foster student entrepreneurial interest in Multimedia Expertise Competencies; 2) analyze the implementation of the teaching factory program at SMK Muhamamdiyah 1 Blora to foster entrepreneurial interest in skill competency Multimedia students; 3) describe student involvement Multimedia Expertise Program of SMK Muhammadiyah 1 Blora in TEFA learning; and 4) analyzing the supporting and inhibiting factors for teaching factory at SMK Muhammadiyah 1 Blora.

2. Literature Review

The government immediately responded by issuing Presidential Instruction No. 9/2016 about Vocational School revitalization. In this case, SMK must make a change by developing or collaborating Competency Based Training (CBT) with Production Based Education and Training (PBET) to be a Teaching Factory (TEFA) (Haris, 2017; Matt et al., 2014). In the future, the product of TEFA learning will be the master competency for students, which includes attitude, knowledge and skills to produce goods or services needed by the community (marketable). At the same time, TEFA practical learning activities can be carried out in school workshops, Production Unit Workshops or in industries where students practice industrial work (PKL) according to the rules of their respective schools (Rakib, 2015).

The 2010-2014 SMK development roadmap is also explained. In 2009, the PSMK Directorate had a vision, one of which was to create an SMK that could produce entrepreneurial graduates who are ready to work, smart, competitive, have a national identity, can develop local advantages and can compete in the global market (Mulyadi et al., 2016). To

achieve this vision, one of the strategies made is to implement the TEFA or teaching industry program at SMK (Sulistyo et al., 2019).

Learning Model, namely the ability of teachers to assist students in obtaining information, ideas, skills, values, ways of thinking, and the ability to express themselves (Antasari & Subali, 2019). Meanwhile, the teaching factory is a combination of competency-based and production-based learning approaches, where the practical learning process that is carried out resembles the practical process carried out in the real world of work by holding production or service activities in the school environment (Azizah et al., 2019).

In the implementation, TEFA has several objectives, those are: 1) increase the competence of SMK graduates; 2) increase the entrepreneurial spirit of Vocational School graduates; 3) produce products in the form of goods or services that have more value; 4) increase the sources of school income; and 5) increasing the cooperation with relevant industry or business entities (Supraptono et al., 2019). According to Chryssolouris et al. (2016), Teaching Factory aims to communicate two-way knowledge between academia and industry.

The TEFA learning model is based on the demands of the School Curriculum (KTSP) in 2006; this learning model is based on the production and learning in the industrial world, support for quality education and training that is oriented towards school relations with DUDI in implementing production units in schools. Another foundation is the expensive cost of student practice materials, equipment that must be maintained in standard conditions, and motivation to improve welfare for all school members, which also can lead to self-confidence and pride for graduates (Haris, 2017).

The Teaching Factory Network (TFN) concept is suggested as an elevated network-based paradigm for manufacturing education (Mavrikios et al., 2018). A teaching Factory enables a two-way knowledge transfer in manufacturing education, as has built up in industry and academia (Mourtzis et al., 2018). Hence, Teaching Factory aims to communicate two-way knowledge between academia and industry (Rentzos et al., 2015). The teaching Factory concept as a collaborative design facilitator (Stavropoulos et al., 2018). meanwhile, Teaching-Factory-based learning implements the concept of e-learning modules and other applications which support independent learning, and the process of teaching and learning is prepared by the complete action model (Lanza et al., 2016).

3. Methodology

The research method used is descriptive qualitative research (Kim et al., 2017). The subjects studied were students from the Multimedia competency of SMK Muhamamdiyah 1 Blora who carried out the teaching factory activities by involving entrepreneurship teachers. At the same time, the object is to foster interest in entrepreneurship. The method used in qualitative research is a case study, where the researcher explores the events, processes, and activities of the subject. A case is bound by time and activity and the researcher collects detailed data using various data collection procedures and in continuous time. The data collection technique uses multiple sources of evidence, namely: in-depth interviews with structured models, frank or subtle observation, and documentation.

This research is in the form of teaching factory implementation to foster students' interest in entrepreneurship. Data collection techniques through direct observation and in-depth interviews. The research approach to initiate the implementation stage of the teaching factory learning model to foster student interest in entrepreneurship is continued to the SMK stage to help graduates become independent entrepreneurs.

4. Results and Discussion

Based on preliminary data about aspects of research, the researchers decided to apply TEFA by involving entrepreneurship teachers to foster student interest in multimedia expertise competencies in entrepreneurship, both in promoting products and in the product packaging process. This is because the purpose of TEFA SMK Musaba is not only to prepare prospective workers who are ready to work at DUDI but also to prepare students to become entrepreneurs if they do not get a job that is on their competence. The research steps are presented in Fig. 3.

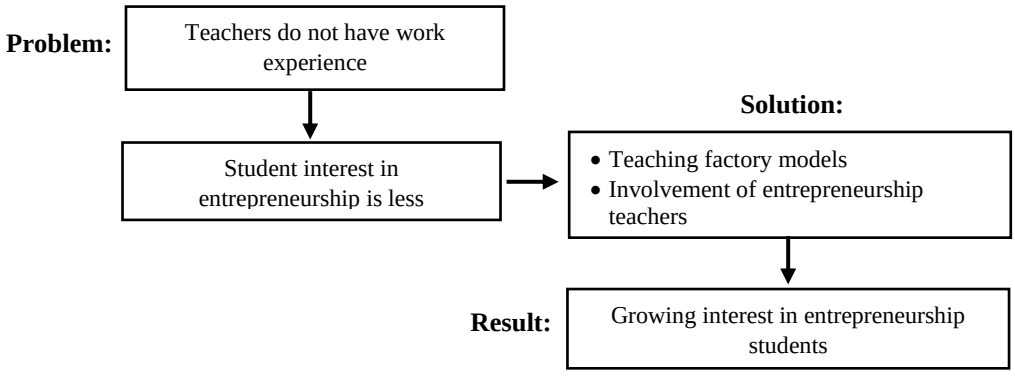


Fig. 3: The impact of teacher experience in vocational school

Judging from Fig. 3, those productive teachers do not have work experience in DUDI; this has an impact on many SMK graduates, especially multimedia skills competencies that are absorbed in DUDI are still lacking, and besides, these graduates are less interested in entrepreneurship, so it increases the unemployment rate in their area. By applying entrepreneurship lessons to TEFA and entrepreneurship teachers involved in TEFA learning, it is hoped that they can provide hard and soft skills for students and foster students' interest in entrepreneurship. This means that entrepreneurship teachers are one of the factors that can affect student interest in entrepreneurship. This statement aligns with the opinion (Mulyadi et al., 2016), which explains that motivation, creativity, and innovation will jointly influence interest in entrepreneurship.

3.1 The Concept of Teaching Factory at SMK Muhammadiyah 1 Blora

The concept of a teaching factory is a form of development from a vocational school to a production school model, namely the merger of Competence-Based Training (CBT) and Production Based Education and Training (PBET). The teaching factory concept can be called a "Mini Factory", namely learning factories with small-scale production and assembly units. The mini-factory is a place for student practice and training to apply theoretical knowledge in real manufacturing situations and environments. It is hoped that later students will become professionals in their fields (Matt et al., 2014).

SMK Musaba applied the teaching factory concept in learning in schools starting in the Academic Year of 2012/2013. This program is a positive step for SMK Muhammadiyah 1 Blora with the hope that the quality graduates will be more skilled and work-worthy in the industrial/business world according to their respective fields/competencies.

The objectives of the teaching factory program at SMK Muhammadiyah 1 Blora are: 1) improving the quality of education, that is, preparing skilled and work-worthy workforce in the business/industrial world, according to their respective fields or competencies; 2) as a place for training in the formation of work mentality before students carry out Field Work Practices/internships Business and Industrial World (DUDI) after graduation; 3) establishing better relations with Business and Industrial World (DUDI) or the surrounding community by opening public facilities; 4) increasing the creativity and foster professional attitudes of teachers and students; and 5) training independence, self-confidence, and an entrepreneurial spirit.

The facilities and infrastructure used in implementing this multimedia teaching factory can already be completed so that the production process is by the specified target. This follows the statement by Marmoah et al. (2019) that the facilities and infrastructure owned by the school in implementing the teaching factory are 60-70% used for business/production activities and (Abele et al., 2017) the management of the use of tools is an important element to consider. This aspect trains students to use tools efficiently so that the appropriate application of the factory SOP must be carried out. Besides, the SOPs applied in KK Multimedia are the same as the SOPs in the industrial world. However, the industrial world, which collaborates with KK Multimedia, is not directly involved in implementing the teaching factory, so the quality of the products made by Multimedia KK only relies on the assessment and expertise of productive teachers with entrepreneurship teachers.

3.2 The Implementation of The Teaching Factory Program at SMK Muhamamdiyah 1 Blora is to Increase Students' Entrepreneurial Interest in Multimedia Competencies

The application of a teaching factory in SMK is a manifestation of one of the efforts of the Directorate of Vocational School Development to further strengthen cooperation or synergy between SMK and industry. Multimedia Expertise Competence at SMK Muhamamdiyah 1 Blora established a teaching factory about 2 (Two) years ago with the name "Le Soleil" taken from French, which means "sun". The school hopes that teachers and students will continue to be enthusiastic in developing the teaching factory in any environment, such as the sun.

Skill competency Multimedia's teaching factory has collaborated with Axioo as an industry class and Graphic Selecta as an apprenticeship in production collaboration, so it is hoped that SMK graduates have competency expertise in their fields. This statement is in line with research (Haris, 2017) that the teaching factory learning model aims to increase the productive competence of vocational students. Besides, it is also hoped to foster students' interest in entrepreneurship. This follows the statement (Hidayat & Suherman, 2015) that a person's interest will be formed by getting used to learning in real-world work situations.

Multimedia competency teaching factory activities include 1) availability of typing and editing services; 2) T-shirt and banner design; 3) digital screen printing (glasses, key holder, t-shirt); 4) shooting and editing of weddings, circumcision; and 5) designing school magazines. Production process planning in implementing TEFA KK Multimedia is shown in Fig. 4.

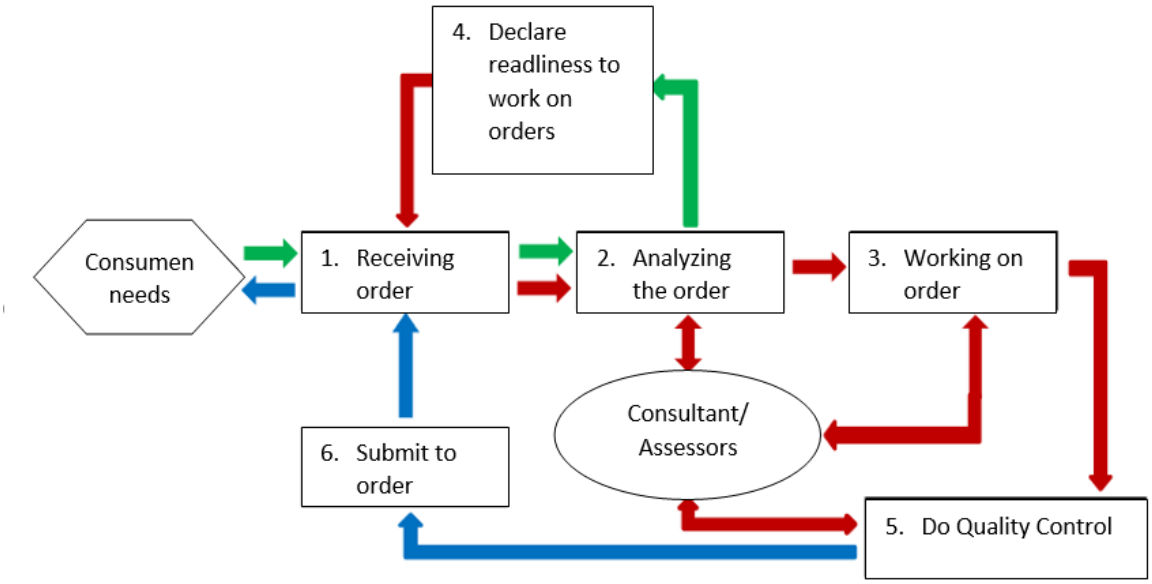


Fig. 4: The process of teaching factory (Source: Haris, 2017)

Based on Fig. 4, the process of teaching factory can be explained as follows:

- In this stage, students receive orders and can deal directly with buyers about the desired service or product. During the implementation of skill competencies Multimedia, students not only accept orders but also promote sample products that will be produced accompanied by entrepreneurship teachers. In this session, students must be able to communicate well, politely, and firmly and write down all input from consumers.
- Analyzing orders: in this stage, students, accompanied by a counsellor/assessor, namely entrepreneurship teachers and productive teachers, must be able to analyze all forms of existing orders in the form of products or services under predetermined specifications, materials, prices, and work deadlines.
- Readiness to work on orders, students provide clarity of attitudes in carrying out (orders) that have been analyzed. Student capabilities will be tested here so that students must have a high responsibility.
- Making orders, at this stage students are accompanied by productive teachers doing work under what has been set in the product specifications and the results of the analysis. Students are required to be able to carry out work by predetermined rules so that products or services are produced under specifications as expected by the order giver.
- Perform Quality Control. At this stage, students are accompanied by entrepreneurship teachers and productive teachers as counsellors/assessors to evaluate the results of the products or services that have been produced and compare them with predetermined standards under predetermined specifications and analysis. This is where the entrepreneurial teacher's role is as a motivator when students present their products. If the results are good under what is desired, the entrepreneurship teacher will praise and the productive teacher can provide input to students to the next stage of product development. Meanwhile, if the results are not good, students will be motivated to stay enthusiastic, keep going, and improve the products they have made. The attitude and motivation given by entrepreneurship teachers is a process of arousing, directing, and strengthening behaviour toward a goal or, in other words, achieving the desired goal. With the attitude of this entrepreneurial teacher, an interest in entrepreneurship will be formed. This follows research (Dahalan et al., 2015) which states that one of the important factors of entrepreneurial interest is attitude and motivation.
- Submitting orders: in this session, students will learn to communicate with consumers. Students will send or submit orders to consumers after the product has been successfully made through a thorough evaluation stage so that the customer (consumer) is expected to be satisfied.

The stages of the above activity process can foster student interest in entrepreneurship. These activities can provide experience and skills that make students feel confident and hardworking, dare to take risks, and never give up. The above statement is by the explanation (Bager et al., 2015), namely that the interest in entrepreneurship is the desire, interest and willingness to work hard or have a strong will to be independent or try to meet their daily needs without being afraid of the risks that will occur, and always learning from the failures experienced. The results of the research above align with the statement from (Gozali et al., 2018), who concluded that applying to a teaching factory can foster a professional attitude in carrying out various jobs.

3.3 The Involvement of Students in Multimedia Competency Program of SMK Muhammadiyah 1 Blora in Teaching Factory Learning

Students involved in this teaching factory activity are students from class XI Multimedia as the target of the activity, while productive teachers act as managers. When working on a product, students are selected first by a productive teacher according to their expertise. Here, the point is that multimedia students do not necessarily have the same skills or abilities in design, shooting, or editing. In the production process, the teacher only observes, gives instructions, and reminds him if anything is missed while the production process runs. In product working progress, the students are selected first by a productive teacher according to their respective expertise. The point is that multimedia students do not yet have the same skills or abilities in designing, shooting or editing. In the production process, the teacher only observes, gives instructions, and reminds him if anything is missed during the product process.

When 1 (One) product has been made, which will be used as an example, students will show productive and entrepreneurial teachers whether consumer orders make the product. If the results are good, the process will continue to make the same product according to consumer orders. If not, the students will improve the product. This process is very important for students because if the product is said to be good then the student's self-confidence will increase, which is one factor in fostering student interest in entrepreneurship. Suppose it is said that the product is not good. In that case, students' enthusiasm is usually immediately lost, and this is where the role of an entrepreneurial teacher provides motivation and positive encouragement so that student interest in entrepreneurship can grow. The above statement aligns with research by McClelland (1965), which proves that personality factors such as achievement needs affect the interest in entrepreneurship.

The process for 50 products takes about two (2) to three (3) days, which is done by five (5) students under the supervision of productive and entrepreneurial teachers. Usually, if the product is sold, the funds will be managed by the multimedia department rather than the school. This is intended so that KK Multimedia's teaching factory can advance quickly and compete in society. Also, students are free to look for consumers or open their businesses by processing their products using the practical infrastructure provided by the school. With the system of replacing used materials, it does not dampen students' interest in entrepreneurship.

The results of this study are supported by research by Amar et al. (2015), which concluded that involving students in TEFA learning can form the character of the student's entrepreneurial spirit.

3.4 Supporting and Inhibiting Factors for The Teaching Factory in SMK Muhammdiyah 1 Blora

In the teaching factory program of SMK Muhammadiyah 1 Blora, it has been common if there are supporting and inhibiting factors in its implementation. Among other things, supporting factors are 1) costs or funds sourced from Central Government Assistance, local government and funds from school committees; 2) supporting equipment even though the use of tools has not been implemented by one tool for one student; and 3) the place where the product is made is industry standard namely working with Axioo. The inhibiting factors themselves are a) product marketing that is still difficult in the community, marketing that must compete with well-known design shops, b) student communication still needs to be improved when explaining products made to consumers, and c) competence and interest itself.

4 Conclusion

In conclusion, the teaching factory model applied in skill competency Multimedia is a model with industry-based learning concepts (products and services), so that students' interest in entrepreneurship will grow and graduates will be more skilled and fit for work in the industrial world. Adequate facilities and infrastructure, competent human resources in their fields, and SOPs that are implemented are the same as SOPs in the industrial world.

Through the production process in implementing TEFA skill competency Multimedia, namely: receiving orders, analyzing orders, declaring ready to carry out orders, working on orders, carrying out quality control, submitting orders, and the involvement of entrepreneurial teachers effectively in fostering student interest in entrepreneurship.

Almost all skill competencies Multimedia students support and are directly involved in implementing the teaching factory by preparing and using practical infrastructure and students' enthusiasm in finding their consumers.

Supporting factors in the teaching factory implementation, namely: 1) costs/funds sourced from Central Government Assistance, Regional Government and funds from school committees; 2) supporting equipment even though the use of tools has not been applied to one student for one tool; 3) workplace products are industry standard, namely in collaboration with Axioo. Meanwhile, the inhibiting factors for implementing the teaching factory include 4) product marketing, which is still difficult in the community; 5) communication between students and consumers still needs to be smoother and more flexible; and 6) competence and interests of the students themselves.

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