**The Entrepreneurship Character of Vocational Secondary School Students who have been Involved in Teaching Factory**

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**Abstract.** This research is aimed to determine the entrepreneurship character of Vocational Secondary School students, who have been involved teaching factory program. The subject in this study were the students who took teaching factory learning at SMK Muhammadiyah 3 Surakarta and SMK N 1 Bawang with 57 students. Data was collected through questionnaires. The questionnaire validity test was performed using the Product Moment correlation technique with a correlation coefficient between 0,408 and 0,807. The questionnaire reliability test was performed using the Alpha Cronbach technique with the Alpha coefficients 0,833. The data was analyzed using statistic descriptive. The research results could be explained that students who took teaching factory learning have good entrepreneurship character. All indicators of entrepreneurship character were in good category. In addition, most of the student’s character of entrepreneurship were in good category and some of the small ones were in excellent category.

1. **Introduction**

Teaching factories Teaching factory is a development of dual system education, namely Competence Based Training (CBT) and Production Based Training (PBT) [1]. The dual system learning method integrates two main environments in each learning process, namely the school environment and the company or industry environment [2].

Teaching factory is a learning concept that emphasizes the achievement of student competencies through production of goods or services. Teaching Factory is an industrial replica, owns equipment with industry, applies operational standards to the same procedure as industry so production of goods and services equal to the industry. The Teaching Factory aims to effectively integrate education, research and innovation activities into a single initiative, involving industry and academia [3]. Teaching factory school programs are required to have a practical learning place for students. The practice place is designed to resemble an industrial environment which is why it is called the teaching factory.

In addition to a practice place that is designed to resemble an industrial environment, the practical learning process applied is the integration between the school curriculum and the standards and procedures that apply in the industry. In teaching factory, there is a synchronization between the curriculum in vocational schools and the needs of the workforce in business or industrial world. In the teaching factory there is a balance between knowledge, theory and analysis with manufacturing, design, business activities, and professional skills [4]. The description can be concluded that, the teaching factory is an effort to make the learning process in vocational schools to b~~e~~ really related to the real conditions in business or industrial world so that VSS graduates can have qualifications in accordance with what is needed by business or industrial world.

The core of the teaching factory is the adoption of the work environment in the atmosphere of learning in schools. Teaching Factory is a learning model in vocational education institutions that use a product, both goods and services as a learning media to deliver competence and is organized through school synergy with industry [5]. There are three teaching factory models. Model 1 is a vocational school that provides space for partner industries to build teaching factory within the school. Model 2 is a vocational school which works together with an industry partner, builds a teaching factory that can be located inside and outside the school environment and is a business unit separate from the vocational school. Model 3 is the teaching factory in the form of special cooperation classes between vocational schools and partner industries, so that students undergo practical learning processes in two places, namely in the workshop or school laboratory and in the factories owned by industries partner [1].

The teaching factory program is a positive step to develop the entrepreneur spirit [6]. Teaching factory can improve student’s skills in communication skills, problem solving skills, and teamwork skills [7]. Student learn how to find problems, build prototypes, make business plan and present their own solution [8]. The implementation of teaching factory can improve entrepreneurship education students. In the planning process students learn to oriented tasks and results. In the production process students learn to be responsible, disciplined, confident, dare to take risks, independent, and cooperative. In facilitation students learn open to technology. In marketing students learn to be honest, passionate, hard work, confident, able to overcome difficulties / problems, able to see opportunities and like challenges. In the evaluation students learn to open receive input, criticism and advice from outside [9].

Teaching factory learning adopts industrial-based training learning patterns. The learning has eight aspects, namely Lesson Implementation Plans (RPP) and Student Worksheet (job sheets), practical materials, practice bases, implementation of education and training, entrepreneurship, instructor/instructor activities, and corporate culture [1]. These aspects are sub parameters of teaching factory implementation.

Entrepreneurship is one of the parameters in the application of teaching factory learning. It is through entrepreneurship learning that the entrepreneurship character of students is developed. Entrepreneurship skills and characters cannot grow just like that, but require a process of fertilization into [4]. The skills and character of entrepreneurship can be developed through practical activities in schools that produce products/services that can be sold to the community or business or the industrial world. Therefore, practical activities carried out in the teaching factory are arranged to be able to provide an entrepreneurship experience.

Teaching factory learning is done on productive subjects. In teaching factory learning students act as workers and teachers act as consultants and assessors [10]. The practical learning process that occurs is that students act as workers to complete an order from the consumer. Consumers from the teaching factory can come from industry partners, school communities, and the general public.

The implementation of teaching factory learning is also integrated with other subjects. The teaching factory learning model is also implemented with entrepreneurship subjects [11]. Student entrepreneurship character development begins when students learn in the industrial climate that is brought to school. Students are aware of the reality of the business and the industrial world so that they are eager to practice and master competencies and design a form of business that will be carried out on entrepreneurship subjects.

Entrepreneurship activities formulated by DECA Inc. are very detailed entrepreneurship activities. These activities are (1) starting school production units (SBE start-ups), (2) job, (3) market research, (4) buying and pricing, (5) receiving, (6) inventory control, (7) services, (8) handling of cash / payment, (9) accounting / bookkeeping, (10) promotion, (11) personal selling / customer service, (12) policies, (13) security. From these activities it can be concluded that the entrepreneurship activities formulated by DECA are activities that occur in a store or shopping center. In this activity there is no production process [12].

Entrepreneurship activities formulated by the Knab consist of three main activities which are then spelled out into more detailed elements in each of these main activities. The three main activities, namely planning, implementation, and evaluation. Planning consist of nine steps, namely (1) selection of name and logo selection, (2) mission, vision and values, (3) team management and supervision structure, (4) target market selection, (5) product, service, or message positioning, (6) positioning, (7) promotion, (8) (place and logistics), (9) (up-up feasibility and viability). Furthermore, the implementation consists of eight steps, namely (1) gaining support through social marketing, (2) recurrent evaluation, (3) daily operation and process refinement, (4) communication structures and methods, (5) sales forecasts, (6) accounting, cash management, and budgeting, (7) emerging market expansion or retraction, (8) partnering and vendor relationships. The last, implementation activities consists of 3 steps, (1) goals outcomes and impacts, (2) social validity, (3) sustainable development. From these activities it can be seen that the entrepreneurship activities formulated by the Knab lead to management activities of a business or business unit [13].

Furthermore, Directorate of Vocational Secondary School of Republic of Indonesia formulated entrepreneurship activities in teaching factory learning into four activities namely planning process, production processes, product handling and marketing [1] [10]. These activities are basically the stages of activity in the teaching factory. In addition, students are also involved with the target aspects of delivery, cost, quality, and efficiency. These aspects are aspects of the business unit. That is, when students do entrepreneurship activities, students must also pay attention to aspects of the target. The combination of activities in the teaching factory and these aspects can shape student’s entrepreneurship character.

1. **Method**

This research was conducted at SMK Muhammadiyah 3 Surakarta and SMK N 1 Bawang. The research subject was the students who took part in teaching factory learning with 57 students in total. This research was conducted in February to October 2019. The data collection technique used in this research was questionnaire. The questionnaire was developed using Likert scale with 4 scales. The 4 scales consisted of: 4 = strongly agree, 3 = agree, 2 = slightly disagree, and 1 = strongly disagree. The questionnaire was developed based on 7 indicators namely risk-taking, responsible, creative, innovative, ambitious, honest and confident. The questionnaire developed had question 38 items.

The validity test for the questionnaire was done using rational expert judgment and trial. The rational expert judgment validity test showed that the questionnaire can be used but with revision. The questionnaire was revised as suggestions from the expert. Then the instrument validity was measured using product moment correlation using the results of the instrument trial as test data. The results of the product moment correlation calculation noted that there are 33 valid question items from 38 question items that were made with a correlation coefficient between 0,408 and 0,807. The questionnaire also tested for its reliability level. The results of reliability test noted that the all alpha score was 0,833 so the questionnaire items were stated to be reliable.

The data were then analysed to determine the mean, maximum score, minimum score and grouping the data according to the distribution of data category. The data were categorized in four groups which were based on ideal score.

1. **Research Results and Discussion**

Student’s entrepreneurship character is seen from the aspect of personal characters. Furthermore, these aspects are seen from seven indicators namely, risk taking, responsible, creative, innovative, ambitious, honest and confident. The seven indicators were measured using a questionnaire distributed to 57 students who participated in teaching factory learning. Next, the tendency of the student entrepreneurship character can be seen from the results of data categorization. The categorization of the student entrepreneurship character can be seen in Table 1.

**Table 1. Trend of Student’s Entrepreneurship Character**

|  |  |  |
| --- | --- | --- |
| **Indicator** | **Score** | **Category** |
| Risk taking | 12 | Good |
| Responsible | 15 | Good |
| Creative | 14 | Good |
| Innovative | 15 | Good |
| Ambitious | 13 | Good |
| Honest | 14 | Good |
| Confident | 16 | Good |
| Total | 99 | Good |

Table 1 shows all indicators of student entrepreneurship character are in the good category. Relatively, the entrepreneurship character of vocational secondary school students who took part in teaching factory learning is in the good category with a score of 99 out of 132.

The character of student entrepreneurship is expected to appear in students after participating in teaching factory learning. Overall, the student entrepreneurship character indicators are in the "good" category with an indicator achievement level of 75.1%. furthermore, the level of achievement of student’s entrepreneurship character indicators can be seen in Figure 1.

**Figure 1.** Achievement Levels of Student Entrepreneurship Character Indicators

Figure 1 shows the level achievement of student entrepreneurship character indicators. From Figure 1, it can be concluded that the indicator with the highest level of achievement is ambitious with an achievement level of 82.5%. The indicator with the lowest achievement is creative, with an attainment level of 70.6%.

**Figure 2.** Trends of Student Entrepreneurship Characteristics

The entrepreneurship character of most students (71.9%) is in the good category. This result is shown in Figure 2. Teaching factory learning can be used as a learning model to develop student’s entrepreneurship character [14]. Teaching factory learning emphasizes education that is more demand-oriented and equips students with entrepreneurship character [11]. These results are in accordance with Laksana, Isnandar & Pryono (2018) who say that TeFa learning emphasizes student learning skills to carry out business and production activities in accordance with the industrial world [15]. These results are also in line with the results of research conducted by Purwidyantini, SDW Prajanti and Widiyanto (2017) that in planning students learn task and result-oriented learning, in the production process students learn to be responsible, discipline, confident, brave to take risks, independent and cooperation, in marketing students learn to be honest, passionate, hardworking, confident, able to overcome difficulties/problems, able to see opportunities and like challenges [9].

1. **Conclusion**

The conclusion that can be drawn based on the results of research and discussion is the entrepreneurship character of students who take part in the teaching factory learning in a good category. All indicators of entrepreneurship character are in good category. In addition, most of the student’s character of entrepreneurship is in the good category and some of the small ones are in the excellent category. Therefore, teaching factory teaching needs to be continued and developed to produce competent and strong character of vocational secondary school graduates.

**Acknowledgments**

I am very grateful to Mrs. Lastri as the coordinator of the teaching factory at SMK Muhammadiyah 3 Surakarta and Mr Muhammad Fariz as the coordinator of the teaching factory at SMK N 1 Bawang for allowing and helping me in this research process. Mr Muhammad Baedowi as a teacher who teach in teaching factory learning in SMK Muhammadiyah 3 Surakarta for helping me during this research. Also, to students of SMK Muhammadiyah 3 Surakarta and SMK N 1 Bawang who participated in the teaching factory program who were willing to cooperate well during this research.

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