



Potencial Application of Teaching Factory Based on Technopreneur Strengthening Model for Increasing Entrepreneurial Productivity in Vocational Education

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Abstract. This research was conducted in the branch area of dinas VII in Pesisir Selatan Regency, West Sumatra. Based on the demands of the curriculum and the needs of the world of work at this time, it is necessary to use technology in managing productivity in vocational education or vocational schools. The purpose of this study is to analyze the application of teaching factories based on the technopreneur strengthening model in increasing entrepreneurial productivity in vocational education. Judging from the application of the teaching factory and the technopreneur model approach in vocational education. This research uses qualitative descriptive methods and article reviews. Where in this study was carried out in all state vocational schools in the South Coast District. The results of this study show that the Teaching Factory can strengthen schools in producing added value productively oriented to economic values. The technopreneur-based approach model spurs the entrepreneurial spirit of students in vocational education schools. The application of teaching factories in vocational education schools can increase student entrepreneurship by using the technopreneur approach model as an effort to increase entrepreneurial productivity in normal distributed schools. Meanwhile, the technopreneurship variable has a theoretical range that shows a technopreneur approach that can increase students' entrepreneurial interest in vocational education institutions. The application of Teaching Factory using the model technopreneur approach can increase Entrepreneurial Productivity in Vocational Education. Efforts to increase entrepreneurial productivity in normal distributed schools with the acquisition of analysis results of 77.70 d" 81.00 median value. Meanwhile, the technopreneurship variable has a theoretical range that shows an average value of 112.18 and a standard deviation of 9.58 with the meaning that there is a potential that increases the implications of applying teaching factories in vocational education accompanied by a technopreneur approach that can increase students' entrepreneurial interest in vocational education institutions.

Keywords: Teaching Factory · Technopreneur · Entrepreneurship

1 First Level Heading (Head 1)

Vocational education is prepared to produce a competent workforce in certain fields of expertise, create productive human beings, provide opportunities to fill the future and build the nation's economy. On the vocational education side, it also prepares graduates to create jobs in responding to the demands of the times and the needs of society. With the competencies possessed by students in vocational education, it is hoped that it can produce added value economically. This added value can be realized through the Teaching Factory in vocational schools, where the teaching factory has a role in fostering the values of independence and entrepreneurship in vocational schools. Teaching factory learning is based on the world of industry the world of work and the business world [1].

Teaching Factory can strengthen schools in producing added value productively oriented towards economic values. Teaching factory can be applied through the science of entrepreneurship directing the steps of graduates to find a job or open a business and job opportunities in accordance with their interests, opportunities and competencies without closing the possibility for graduates to continue their education to the next level of higher education. Teaching factory makes the concept of learning in real circumstances to overcome the gap between knowledge and skills that must be given to students in synchronizing between achievements in school and the needs in the world of work [2].

Teaching Factory-based learning objectives realize that teaching at this time in vocational schools is more than just providing theory and practicum in accordance with learning guidebooks, but how to balance knowledge, skills and work attitudes to students. Through teaching factory teaches students to find problems, build prototypes, learn to make products, learn to offer products. This shows that schools are only a stepping stone to prepare individuals to create new breakthroughs according to their abilities and not only expect to get a job by finding a job through the business world, industry and the world of work, but rather create jobs. Because good education is an education that not only prepares students or students for one particular profession or job position, but to complete well accompanied by overcoming the challenges faced in everyday life as a social being.

Studying in vocational schools is a baton to continue the ideals in accordance with their will and competence and as a pattern of creating people who are able to work and open jobs, not only as people who are looking for jobs, who are implementing to create jobs armed with skills and according to the desired mindset. Vocational education prepares students to have skills that lead to the needs of the world of work [3].

Along with that, the development of the times requires humans to continue to innovate in responding to the challenges of progress and the needs of living, especially in the field of education. This innovation is expected to process learning in vocational education more effectively, efficiently and productively, so that it can form a human personality that has an entrepreneurial spirit and dares to start something new and is ready for all risks that occur in the future. Preparing students and graduates to face the world of business, the world of work and the world of industry becomes part and responsibility of schools, teachers and government.

Vocational education in vocational schools has its own characteristics when compared to other education in the general education class. As a whole, vocational education

prepares its graduates to enter the World of Work, Business and Industry. Through programs in vocational education, a person has dignity and facilitates himself to work and get a job so that he has enough income to pay for the needs of his life and life which also allows a person to be able to contribute to society and the environment.

Nowadays, there are not a few vocational school graduates in vocational schools who enter the business world, this is also based on the small absorption of graduates in the world of work, due to the comparison of graduates with the needs of the world of work that is not comparable, this situation makes it a challenge for schools to prepare their graduates for entrepreneurship. Many vocational high school graduates open services and products, both in the form of repair services, replacement, installation and other services, according to their abilities and with the development of digital technology in today's saar provides a forum for graduates to take advantage of digital form plates in starting, running and developing a business.

Developing a digital platform is inseparable from the science of entrepreneurship and is combined with technological developments. This is referred to as technopreneurship, where a person's ability to develop their entrepreneurship through the use of technology [4]. In the field of technology, technopreneurship describes the ability to use technology to run a business from the application of teaching factories creatively, innovatively, dynamically, has different values, and tries to innovate with the use of digitalization dynamically [5].

In essence, technopreneurship education describes and provides learning to explore the development of entrepreneurial skills in various ways in the learning process that is implemented in the teaching factory from time to time in accordance with the developments and needs of the times, with advances in science and technology (IPTEK) which in general can improve the quality of human resources in utilizing technology as a forum for self-development and fostering independence in entrepreneurship [6].

Vocational education in vocational high schools produces products through production units managed at teaching factories as a form of habituation of the world of work to students in vocational education, the existence of teaching factories aims to improve the quality of learning by producing something (Learning by doing). Learning by utilizing a teaching factory can generate added value for schools whose advantages can be used as an addition to the operational costs of learning in schools through a determined and legalized mechanism.

In addition, teaching factories can also improve student competence in vocational education, through teaching factory-based learning can make learning have practical media, be able to produce products with good quality in accordance with what is circulating in the market, apply the conformity of existing standards in the industry, and also provide better opportunities for shiva to be able to learn to imply the knowledge and skills possessed to innovate in the teaching factory and are equipped with knowledge that can increase the spirit of entrepreneurship in students in vocational schools and vocational education.

Vocational education provides opportunities for students to develop their potential as much as possible without any restrictions that hinder the growth and development of this potential so as to provide space for them to innovate and periodically collaborate in producing quality products in accordance with the expertise they have as mandated in

government regulation Number 32 of 2013 on the basis of changes on the basis of PP Number 19 of 2005 about National Education Standards [7].

Vocational education is here to produce a competent workforce in their field of expertise and able to compete in the labor market and the needs of the world of work both in the national and international markets [8]. The explanation above suggests that improving teaching factories based on the technopreneurship approach model can develop themselves in utilizing technological advances to find new things in producing economic values and innovations [9].

Based on the explanation above, it is necessary to conduct an in-depth study related to how the potential application of the Technopreneur Strengthening Model-Based in Increasing Entrepreneurial Productivity in Vocational Education in vocational schools in the work area of the West Sumatra provincial education office.

2 Research Method

The research in this article uses qualitative descriptive research methods and is combined with review literature from several national and international journals on technopreneur education, where this research was conducted in 9 (nine) vocational public schools in south coastal districts. West Sumatra Province.

The subjects of this study were vocational schools in the South Coast District in all areas of expertise competence. The data collection technique in this study is to use data, instruments and data analysis techniques [10].

The study was conducted in two phases. Where in the first phase, activities are carried out to convey goals and motivate schools in realizing the school teaching factory, the delivery of this information is carried out with the aim of explaining the outlines of the implementation of teaching factory implementation in schools using initial approaches.

The second phase is carried out by presenting information about teaching factories and technopreneurship to be implemented properly in all vocational schools or vocational education in the south coastal district area.

To obtain more accurate and complete data, this study collected data through a literature review that is in line with the theme of this study. The implementation of the technopreneur strengthening model in vocational education in shaping character so that it can produce technopreneurs can be described in the following analysis (Table 1).

3 Result and Discussion

The use of technopreneurship in teaching factory-based learning is part of the considerations that are a priority in vocational education or vocational schools, in addition to learning in vocational education producing hard skills, soft skills and fostering an entrepreneurial attitude, this can also accommodate facilities and strive to provide entrepreneurial knowledge based on the use of technology. Programs in vocational schools must be able to provide achievement of goals by complementing teaching factory-based learning, getting used to project-based learning and problems then out of coming from the level of understanding students are in the realm of cognitive critical

Table 1. Setting goals technopreneurship

| Goals | Learning | Source |
|--|---|------------------------|
| Shaping the technopreneur spirit in vocational education or vocational education | The need for competence in vocational schools that are oriented towards increasing production and fostering independence in students can produce graduates who have a high entrepreneurial spirit. | (Taatila, 2010) [15] |
| Strive for the realization of business technology | As an effort from the adnya of planning that produces new ideas and ideas from technopreneurs in the face of global market forces in the future. | (Lalkaka, 1996) [16] |
| Planning an increase in human resources oriented towards increasing soft skills and hard skills-based competencies | Analyzing planning, conducting training, fostering high confidence and work ethic and being able to organize work in a more conducive and integrated manner | (Al-Qudah, 2014) [17] |
| Striving to form an entrepreneurial personality that builds Brand Awareness | Showing that technopreneur-oriented learning objectives require further focus and be well accompanied so that the expected results or outputs are in accordance with the planned objectives in the application of the technopreneurship model in vocational education | (Chao-Tung, 2015) [18] |

thinking. An effort to expose vocational education graduates to adapt to the business world, the industrial world and the world of [11].

The technopreneur-based approach model spurs the entrepreneurial spirit of students in vocational education schools. To see the impact of this technopreneur, research was conducted on how the entrepreneurial learning model based on project technology development in increasing the value of knowledge and skills of students and teachers in vocational schools. The application of this technopreneur-based teaching factory includes developing creativity, building identity, strengthening (Fig. 1).

As for seeing the impact of the application of teaching factories based on the technopreneur strengthening model in increasing entrepreneurial productivity in vocational education, it can be seen in the following analysis results:

Based on the data in Table 2, it shows that the teaching factory application variable has a theoretical range between 57 and 93 with an average value of 77.70 and a standard deviation of 6.75. While the average value of the variable application of teaching factory is 77.70 d" 81.00 median value, it can be said that the application of teaching factory in

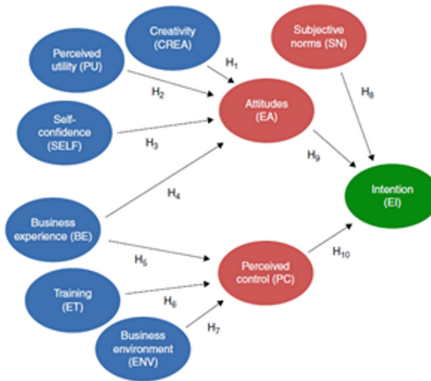


Fig. 1. Technopreneur Education Model Structure

Table 2. Descriptive Statistics

| Variabel | N | Min | Max | Sum | Mean | Media | Std. Deviation |
|----------------------------------|-----|-----|-----|-------|--------|--------|----------------|
| Application teaching factory (Y) | 267 | 57 | 93 | 21299 | 77.70 | 81.00 | 6.75 |
| Technopreneurship (X) | 267 | 82 | 133 | 30485 | 112.18 | 116.00 | 9.58 |

vocational education schools can increase student entrepreneurship by using a technopreneur approach model and is considered normal distributed. The standard deviation value indicates a deviation of 6.75.

While the technopreneurship variable has a theoretical range between 82 and 133 with an average value of 112.18 and a standard deviation of 9.58. While the average value is 112.18 d" median value of 116.00, so it can be said that teaching factories using the technopreneur model can increase entrepreneurial productivity in vocational education. The criteria for technopreneurship or considered normally distributed. The standard deviation value shows a deviation of 9.58 from the average value of respondents' answers to the increase in teaching factory, which is 112.18.

Based on the table above, the indicator that has the highest average value in the teaching factory variable is the ability to identify products to be used as learning resources, which is 4.27. An indicator that has an average score lower than the overall average score is the ability to carry out the learning process, which is 4.15. While the indicator that has the highest average value on the Principal technopreneurship variable can motivate, which is 4.32. Indicators that have an average score lower than the overall average score are achievement-oriented, which is 4.17.

This motivates teachers to develop entrepreneurship in schools through the application of teaching factories. The development of quality education in vocational schools requires leadership skills in terms of management and entrepreneurial skills. Schools are required to make progress over time. In addition, things to support teachers to be

Table 3. Analysis of the Relationship between the Two Variables

| Correlation Between Variables | Correlation Coefficient | Determination Coefficient | Contribution |
|-------------------------------|-------------------------|---------------------------|--------------|
| X with Y | 0.887 | 0.7667 | 76.86% |

able to convey creative ideas in learning. The principal is a motivator, meaning that the principal must have skills in managing and creating a conducive work climate that supports the improvement of school quality [12]. The application of teaching factories based on the technopreneur strengthening model in increasing entrepreneurial productivity in vocational education takes an important role, because the development of the teaching factory program in vocational education is a combination of educational concepts with the entrepreneurial-based world of work which is implied through production units in the field of expertise in schools [13].

Through the application of teaching factories in schools, it provides flexibility to teachers and students in developing innovative works that foster innovative behaviors to support the learning process, improve quality so as to create an industrial atmosphere in schools. To maintain the implementation of the teaching factory in schools, of course, support from school leaders is needed to provide space for teachers and students in creating entrepreneurship in schools [2, 14]. Analysis of the contribution of variable correlation and coefficient of determination between teaching factory and technopreneur model in increasing entrepreneurial interest can be seen in Table 3.

Table 3 shows the value of the coefficient of determination of 0.7667 which is equivalent to 76.86%. This figure can be interpreted to mean that the variable application of teaching factory contributes to the variable model of the technopreneur approach in increasing interest in entrepreneurship by 76.86%, while the remaining 21.32% is contributed by other factors that support the development of teaching factories in vocational education. The regression results obtained were 0.887 0.05, which means that the technopreneurship model approach has a direct and significant effect on the development of teaching factories.

4 Conclusion

Graduates of vocational schools or vocational education need to be protected with entrepreneurial abilities because in the world of work not necessarily all graduates are absorbed into the world of work. For this reason, the teaching factory is one of the effective learning tools to improve the competence of students and foster the development of an entrepreneurial spirit. The application of Teaching Factory using the model technopreneur approach can increase Entrepreneurial Productivity in Vocational Education. This can be seen from the results of observations of the two variables, namely the teaching factory variable with the technopreneurship variable. Vocational schools must be able to provide achievement of goals by complementing teaching factory-based learning in vocational education and familiarizing with project-based learning. The results showed that the application of teaching factories in vocational education schools can

increase student entrepreneurship by using the technopreneur approach model as an effort to increase entrepreneurial productivity in normal distributed schools with the acquisition of analysis results of 77.70 d " 81.00 median value. Meanwhile, the technopreneurship variable has a theoretical range that shows an average value of 112.18 and a standard deviation of 9.58 with the meaning that there is a potential that increases the implications of applying teaching factories in vocational education accompanied by a technopreneur approach that can increase students' entrepreneurial interest in vocational education institutions. Improving teaching factories based on the technopreneurship approach model can develop themselves in utilizing technological advances to find new things in generating economic values that can bring profit.

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