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EFFECT OF INDUSTRY-BASED LEARNING AND MOTIVATION ON STUDENT'S ENTREPRENEURSHIP COMPETENCIES

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Abstract. *The entrepreneurship skills in industrial-based learning constitute students' real-world skills to face the challenges in their future workforce. To keep the students engaged in the entrepreneurship learning, keeping the students' highly motivated is worth-noting. The present study aims to analyze: 1) entrepreneurial competence differences between students who were guided by using the concept of industry-based learning and groups of students who were guided by using conventional learning concepts, 2) differences between students with high learning motivation and students that had low learning motivation towards their entrepreneurial competencies, and 3) significance of interactions between industry-based learning conventional learning, and learning motivation towards the students' entrepreneurial competencies. The research employed an experimental method and a factorial 2x2 design. The questionnaire, written tests, and practice tests were used for data collection. The collected data were then subsequently analyzed by using the two-way ANOVA. The results indicated that: 1) there were significant differences in entrepreneurial competencies of the students between industry-based and conventional learning models, 2) there were significant differences between students' learning motivation towards their entrepreneurial competencies, 3) there were interactions between industry-based and conventional learning models and learning motivation towards students' entrepreneurial competencies students' entrepreneurial competencies.*

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A. INTRODUCTION

The development of the business and industrial world in developing countries including Indonesia is in desperate need of reliable and capable human resources to carry out tasks in the field according to their fields of expertise and the types of jobs available. The availability of those reliable human resources is generated from a process of education and training that is serious and responsible through

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several activities that sharpen knowledge and skills continuously. The educational system is required to prepare the students for lifelong learning including Education in Vocational High Schools (or popularly known as *Sekolah Menengah Kejuruan* or abbreviated as SMK). It must prepare students for life skills that lead to the world of work in accordance with their respective competencies through industry-based learning (Teaching Factory).

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There have been numerous studies on developing the students' real world skills (Fook & Sidhu, 2015; Kapasa1, Samuels, & Mulendem, 2015). They further added that there had been considerable critique on the adequacy of current materials that could enhance the students' performance in life skills. One of them is concerned with the fact that the materials are not considerably work-related. The materials are suggested to directly linked to what is required by the current industry.

Industry-based learning (Teaching Factory) is a concept learning implemented in the SMK level based on products/services that refers to standards and procedures that apply in the industry and implemented in an atmosphere like what happens in industry. It emphasizes how to produce products and services that are useful and of economic value and have selling power so as to be accepted by the market (Directorate of Community Participation, 2009). This learning model is different from conventional learning methods which are currently widely used by teachers by relying on memorization, the delivery of information is mostly done by teachers, and students passively receive learning information that is very abstract and theoretical, and tends to provide a lot of information to students

(Ahmadi, 2012: 24).

In addition to implementing an appropriate learning model in order to produce entrepreneurial competencies of students characterized by the ability to create a product or provide services to consumers independently and rely on the capabilities that exist within themselves, it also requires motivation to learn which is internal and external encouragement to students conduct behavioral changes to succeed in learning (Uno and Hamsah, 2006). The interaction between the application of an effective learning model and the learning motivation of high students will therefore be easier in realizing entrepreneurial competencies of the vocational students.

The objectives of this study are: 1) To identify the differences in entrepreneurial competencies between the students who are guided by using the concept of industry-based learning (Teaching Factory) and the groups of students guided by conventional learning concepts; 2) To identify the differences in entrepreneurial competencies between the students who have high learning motivation and students who have low learning motivation; and 3) To identify the significance of the interaction between industry-based learning (Teaching Factory), conventional learning, and

learning motivation towards entrepreneurial competencies.

This research would benefit the entrepreneurship education at the vocational high school level which intends to develop the students' essential life skills to enter the fields of work in the future.

B. METHODS

This research was conducted at SMK Negeri 2, a state-run vocational high school, Ponorogo. The population of the study included 78 students of Food Management Skills Competencies and 98 students of Dress Making Skills Competencies of 12th Grade of SMK Negeri 2 Ponorogo (State Vocational High School 2) in the semester 2018/2019. Determination of the number of samples was based on the calculation of the Taro Yamane and Slovin formulas (in Ridwan, 2005: 65). Accordingly, there were 122 samples with a classification of 54 Food Management skills competency students and 68 dressmaking skills competency students.

The ways of collecting data included documentation, written tests, and practice tests. The documentation was used to collect the value of industry-based learning (Teaching Factory) and the value of conventional learning. The questionnaires were employed to measure stu-

dents' knowledge of the concepts of Teaching Factory and conventional learning motivation. The multiple choice writing tests were to assess the ability of the Pre (Test) and the final ability (Post Test) after the students acquired the concept of industry-based and conventional learning. While the practice test to measure and conventional entrepreneurial competencies mastered by students. The instruments in the study were tested for validity, reliability test, difficulty level test, and distinguishing power.

Before the data analysis performed the normality test using the Kolmogorof-smirnov method and homogeneity test with Levene test. The research method used was an experimental method with a 2 x 2 factorial design, because it has two independent variables and one dependent variable. The first independent variable is industry-based learning (Teaching Factory), the second independent variable is conventional learning. The moderator variable is learning motivation between the students who have high learning motivation and the students who have low learning motivation. The dependent variable is entrepreneurial competence. The 2 x 2 factorial design is presented in table 1. The following is below:

Table 1.1. Research

Learning Model (A)	Teaching Factory X1	Conventional Learning X2
Motivation (B)		
High (B1)	KK1	KK2
Low (B2)	KK3	KK4

(Dantes, 2012:100)

Notes:

X1	: Industrial-based learning (Teaching Factory)
X2	: Conventional Learning
KK1	: Entrepreneurial Competencies of student group using the Teaching Factory and having high learning motivation.
KK2	: Entrepreneurial Competencies of student group using the conventional learning and having high learning motivation.
KK3	: Entrepreneurial Competencies of student group using the Teaching Factory and having low learning motivation.
KK4	: Entrepreneurial Competencies of student group using the conventional learning and having high learning motivation.

Testing the hypothesis in this study used the following criteria: if $F_{count} > F_{table}$ or significant value (p) $< \alpha$ with a significant level of $\alpha = 5\%$ then H_0 is rejected and reversed. The hypothesis proposed is as follows:

Ha1: There are differences in the entrepreneurial competencies possessed by the students who use industry-based learning (Teaching Factory) and the students who use conventional learning.

Ha2: There are differences in the entrepreneurial competencies of the students who have high learning motivation and the students who have low learning motivation.

Ha3: There is an interaction between the

industry-based learning (Teaching Factory), the conventional learning motivation and the student entrepreneurial competencies.

Based on the median value of the acquisition of the total score of each participant in the questionnaire on the Teaching Factory learning model and Conventional learning, as well as learning motivation the participants were divided into four groups. (1) The Teaching Factory learning group who has high learning motivation consisting of 39 participant students; (2) The conventional learning groups who has high learning motivation consisting of 24 students; (3) The Teaching Factory

learning groups who has low learning motivation consisting of 32 students; and (4) The conventional learning groups who has low learning motivation as many as 27 students.

C. RESULT AND DISCUSSION

Based on the median value of the acquisition of the total score of each participant in the questionnaire on the Teaching Factory learning model and Conventional learning, as well as learning motivation the participants were divided into four groups. (1) The Teaching Factory learning group who has high learning motivation consisting of 39 participant students; (2) The conventional learning groups who has high learning motivation consisting of 24 students; (3) The Teaching Factory learning groups who has low learning motivation consisting of 32 students; and (4) The conventional learning groups who has low learning motivation as many as 27 students.

Testing the first hypothesis about the learning model based on the results of two-way ANOVA using Tests of between Subjects Effects found that the F count was 29.564, the written test was 7.575, and the practice exam results were 17.569 > F table of 2.68 and significant values each is 0.000, 0.007, and 0.000 < 0.05. Thus H_0 is rejected and H_a is

accepted. So that it can be concluded that there are differences in influence on entrepreneurial competencies possessed by guided students by using an industry-based learning approach (Teaching Factory) and groups of students who are guided by using conventional learning.

There is a difference in the entrepreneurial competencies possessed by the 12th grade students of Food Management of SMK Negeri 2 Ponorogo used as pilot projects using the industry-based learning (Teaching Factory) and the students who use the conventional learning. This happened because even though the first year of the application of industry-based learning (Teaching Factory) showed the results of the independence of students in their entrepreneurial competencies, this was supported by the completeness of infrastructure that could meet the ratio of 1 student: 1 equipment and high commitment from the instructors. While the conventional approach is learning that is more teacher-centered, more one-way communication from teacher to student, more learning methods on mastering concepts and less on giving productive competence. Therefore the application of the Teaching Factory approach and conventional approaches can lead to differences in entrepreneurial

competency of students.

The results of testing this hypothesis are relevant to the study of Kurniawan (2014) which indicates that students' interest in the TF-6M learning model is greater than conventional learning. Referring to the results of a study conducted by Hidayat (2011), the six-step Teaching Factory learning model is considered to be very effective and efficient and able to provide entrepreneurial competency for vocational students. The six steps in question are accepting the order giver, analyzing the order, expressing the readiness to do the order, working on the order, performing quality control, and submitting the order. Other research results from Siswanto (2011) show that the application of Teaching Factory in Vocational Schools can produce graduates who have competent entrepreneurial competencies. This is evidenced by the students of Vocational High School of Mikael Surakarta, which succeeded in increasing the entrepreneurial competencies of its students.

The testing of the second hypothesis about learning motivation based on the results of the two-way ANOVA using Tests of Between Subjects Effects found that the F count was 33.035, the written

test was 21.501, and the practice exam results were $11.110 > F$ table of 2.68 and significant values each is 0.000, 0.000, and $0.001 < 0.05$. Thus H_0 was rejected and H_a was accepted. So that it can be concluded that there are differences in influence on the entrepreneurial competencies between the students who have high learning motivation and the students who have low learning motivation.

In addition, there are differences in the entrepreneurial competencies between students who have high learning motivation and the students who have low learning motivation. This happens because the motivation to learn is the overall power of motivation both from within and outside of the students by creating a series of efforts to provide certain conditions that guarantee continuity and provide direction to learning activities, so that the objectives desired by the subjects of learning can be achieved. In this study, the high or low motivation of learning influenced the entrepreneurial competencies because: (1) determining learning reinforcement, (2) the role of motivation in clarifying learning goals, and (3) motivation to determine perseverance in learning.

The results of testing this hypothesis are in accordance with the results of

research by Mahendra, et al. (2017) revealing that the higher the motivation and entrepreneurial attitude of the students, the higher the enthusiasm for building new businesses, trying to apply entrepreneurial competencies in the business world, and adventure in entrepreneurship. Contradictorily, for the students who have low learning motivation, of course, their entrepreneurial competence was also not good because the enthusiasm to develop themselves through skills activities was also low. The research by Komarudin et.al (2018) also found that there were significant differences for the students who had high learning motivation with the students who had low learning motivation towards their entrepreneurial competencies.

Testing the third hypothesis about the effect of the interaction of the learning model with learning motivation based on the two-way ANOVA using Tests of Between Subjects Effects found that the calculated F value was 11.441, the written test was 15.633, and the practice exam results were $17.077 > F$ table of 2.68 and significant value of 0.001, 0.000 and 0.000 < 0.05 . Thus H_0 is rejected and H_a is accepted. So that it can be concluded that there is an influence of the interaction between the

industry-based learning (Teaching Factory), the conventional learning motivation and the students' entrepreneurial competencies.

Furthermore, there is an influence of interaction between the industry-based learning (Teaching Factory), the conventional learning and the students' motivation on their entrepreneurial competencies. If there is an interaction between the Teaching Factory approach and the students with high learning motivation, it will be easier to realize the entrepreneurial competencies of the vocational students. The students who were suitable for the application of the Teaching Factory learning concepts supported by their high learning motivation were ensured that their entrepreneurial competencies were also very good. Likewise, if the students were more pleased with the conventional learning concepts even though they were supported by high learning motivation, entrepreneurial competencies were not as good as the students who were guided by the industry-based learning model (Teaching Factory).

The results of testing this hypothesis are relevant to the results of research conducted by Amar, et al. (2015) indicating that there was a strong interaction between the application of

learning models and learning motivation, and the students' entrepreneurial competencies. The students given the Teaching Factory learning model and having high learning motivation tended to be more confident, responsible for their actions, disciplined, passionate, have a strong mentality, never give up, are able to face challenges and solve problems, are able to take risks and plan wisely.

D. CONCLUSION

Based on the results of data analysis and discussion in this study, it can be concluded as follows:

1. There was a significant difference in the entrepreneurial competencies of the students who used the industry-based learning (Teaching Factory) and the students who used the conventional learning of Grade 12 of SMK Negeri 2 Ponorogo;
2. There were significant differences in the entrepreneurial competencies of the students who had high learning motivation and the students who had low learning motivation of Grade 12 of SMK Negeri 2 Ponorogo;
3. There was a significant interaction between the industry-based learning (Teaching Factory), the conventional learning and the students' learning motivation

towards the entrepreneurial competencies of Grade 12 students of SMK Negeri 2 Ponorogo.

While the suggestions that can be given based on the results of this study are as follows:

1. Vocational schools that apply the concept of industry-based learning (Teaching Factory) should prepare teaching resources that are reliable, capable and able to provide good knowledge, skills and attitudes to participants students such as reality in industry;
2. The concept of developing industry-based learning (Teaching Factory) must be supported by adequate and standardized infrastructure so that the output produced has a professional working attitude.

E. REFERENCES

- Ahmadi. (2014). Model Pembelajaran Konvensional. Retrieved from [http://yudi-wiratamablogspot/2014/01/Pembelajaran Konvensional.html](http://yudi-wiratamablogspot/2014/01/Pembelajaran-Konvensional.html)
- Amar, A. F., Hidayat, D., and Suherman, A. (2015). Penerapan Model Pembelajaran Teaching Factory 6 Langkah (TF-6M) untuk meningkatkan Motivasi Berprestasi Siswa SMK. *Journal Of Mechanical Engineering Education*, 2 (2).

- Direktorat PSMK. (2009). *Roadmap Pengembangan SMK 2010-2014*. Jakarta: Departemen Pendidikan Nasional.
- Fook, C. Y., & Sidhu (2015). Investigating Learning Challenges faced by Students in Higher Education. *Procedia - Social and Behavioral Sciences*, 186(2015), 604 – 612.
- Hidayat, D. (2010). Pengembangan Model pembelajaran Teaching Factory (ModelTF-6M) untuk meningkatkan Kompetensi Siswa dalam Mata Pelajaran Menengah Kejuruan. (Dissertation, Program Studi Pengembangan Kurikulum. SPs Universitas Pendidikan Indonesia, Bandung).
- Kapasa, J., Samuela, B. E., & Mulendema, P.J. (2015). Problems Faced by Students and Lecturers in Teaching and Learning of Approximation in Primary Colleges of Education: A Case Study of 4 Primary Colleges on the Copperbelt Province – Zambia, *Journal of Education and Practice*, 6 (17), 137-148.
- Komarudin, Sutadji, E. &Suhartadi, S. (2018). Contribution of Teaching Factory and Self Efficacy to the Vocational Competence and Its Impact to Student Work Readiness. *International Journal of Novel Research in Education and Learning*, 5, 1-7.
- Kurniawan, R. (2017). Model Pembelajaran Teaching Factory 6 M Merupakan Model Pembelajaran Terpadu. *INVOTEC*, 10 (1), 57-66.
- Mahendra, A.M., Hermawan, A., &Djarmika, E. (2017). The Effect of Entrepreneurship Education on Entrepreneurial Intention Mediated by Motivation and Attitude among Management Students, State University of Malang, Indonesia. *International Education Studies*, 10 (9), 61-69.
- Siswanto, I. (2011). Pelaksanaan Teaching Factory Untuk Meningkatkan Kompetensi Jiwa Kewirausahaan Siswa SMK. Proceedings of Seminar Nasional, 2011: Wonderful Indonesia, Yogyakarta: PTBB FT UNY, December, 3.
- Uno, B. & Hamzah. (2007). *Model Pembelajaran*. Jakarta: Bumi Aksara.