



VANOS

JOURNAL OF MECHANICAL ENGINEERING EDUCATION

<http://jurnal.untirta.ac.id/index.php/vanos>

ISSN 2528-2611, e-ISSN 2528-2700

Vol.2, No.2, Desember 2017, Page.153-164.



TEACHING FACTORY ON IMPROVING STUDENT COMPETENCY IN BANTEN

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Accepted: 5 October 2017. Approved: 21 November 2017. Published: 30 December 2017

SMK has an important role in the preparation of labor. SMK is required to always be able to follow the needs of the work world that continues to grow in accordance with the vision and mission objectives of SMK. This study aims to 1) to know the readiness of teaching factory implementation, 2) to identify problems of teaching factory application. This research uses quantitative descriptive. Source of data obtained from SMKN 2 Pandeglang, SMP Ypp Pandeglang, SMKN 7 Pandeglang, SMKN Agriculture Serang City, SMKN 1 Cikande, SMKN 1 Cilegon And Smkn 4 Serang City, the number of respondents amounted to 30 respondents. Data collection techniques using a questionnaire of 30 items. Technique of data analysis using quantitative descriptive statistic. Implementation of Teaching Factory Result to Student Competence Improvement, showed that 1) acquisition from aspect of readiness of human resource in aiming very good result / high with percentage 81%. Aspects of infrastructure facilities show excellent results / high percentage 79%, Aspects of cooperation readiness DU / DI percentage of 68% showed good results / high 2) Problems of teaching factory implementation can be explained. a) lack of restrictions on cooperation in schools with DU / DI b) still lack of tools and sarapa prakti from DU / DI. c) forms of cooperation undertaken not in accordance with school expectations.

Keywords: implementation, teaching factory, student competence.

INTRODUCTION

Vocational High School (SMK) is one form of a formal education unit that provides vocational education in secondary education as a continuation of SMP, MTS, or other similar forms. Schools in education and vocational type can be named Vocational High School (SMK) or Madrasah Aliyah Kejuruan (MAK), or other similar forms (Act of National Education Number 20 Year 2003).

Vocational secondary education is education in secondary education which prioritizes the development of students' ability to undertake certain types of work. Vocational secondary education prioritizes preparing students for entering employment and developing professional attitudes. In accordance with its form, the vocational secondary schools organize educational programs tailored to the types of employment (Government Regulation Number 29 of 1990).

The purpose of vocational secondary education pursuant to Law Number 20 Year 2003 is divided into general and specific objectives. The general aims of vocational secondary education are (a) increasing the faith and piety of learners to God Almighty; (b) develop the potential of learners to become citizens of noble, healthy, knowledgeable, capable, creative, independent, democratic and responsible; (c) develop the potential of learners to have national insight, understand and appreciate

the cultural diversity of the Indonesian nation; and (d) develop the potential of learners to care for the environment by actively participating in maintaining and conserving the environment, and utilizing natural resources effectively and efficiently.

The specific objectives of vocational secondary education are as follows: (a) preparing learners to become productive human beings, able to work independently, fill out existing job vacancies as middle-level workforce in accordance with competencies in their chosen skills program; (b) prepare learners to be able to choose a career, tenacious and persistent in competence, adapt in the work environment and develop a professional attitude in the field of expertise of interest; (c) equipping learners with knowledge, technology and art in order to be able to develop themselves in the future either independently or through higher education levels; and (d) equip learners with competence in accordance with the chosen skill program.

The 2013 curriculum is a refinement of mindset, strengthening of curriculum governance, deepening and expanding the material, strengthening the learning process, and adjusting the burden of learning in order to ensure conformity between what is desired and what is produced. To strengthen the (scientific) approach. Implementation Teaching Factory is one approach to real learning model that can be used to equip learners in entering the workforce.

Teaching Factory is one of the efforts to bring the real world of industry / work in school environment. In practice, teaching factory has several objectives, namely: 1) Increasing the competency of SMK graduates, 2) Increasing the entrepreneurship spirit of SMK graduates, 3) Produce products in the form of goods or services that have added value; 4) Increase school income sources, and 5) Increase cooperation with industry or relevant business entities (Herminarto, 2008).

Real experience is very important in teaching and learning activities for the development of students' knowledge and skills in production / service activities, such as in experiential learning theory found in the application of teaching factory, (Kolb, Boyatzis, and Mainemelis, 1999: 2). This is in accordance with the statement submitted by Triatmoko In a simple concept Teaching factory is the development of the double unit production and education system that has been implemented in SMK - SMK. The concept of teaching factory is one form of development from vocational school to model of production school. (Triatmoko, 2009: 35).

The teaching factory program is a new breakthrough that combines Competency Based Training (CBT) and Production Based Training (PBT), in the sense that a skill and hard skill process is implemented based on actual work procedures and standards to produce appropriate graduates with the

demands of the market or industry for the education world where, creating graduates who are competent and ready to work. Therefore teaching-based learning factory on the work of one of the solutions in improving student competence and also foster the soul of intreprenurship for students thus, teaching factory is a learning activity where students directly perform production activities either in the form of goods or services within the school education environment so menghasilkan graduates are accepted by the industrial world.

Competence is defined as knowledge, skills and abilities controlled by a person who has become a part of himself so that he can perform cognitive, affective and psychomotoric behaviors as well as possible. Competencies that must be mastered by students need to be expressed in such a way that can be assessed, as a form of student learning outcomes that refers to direct experience, in addition jugapeserta students need to know the learning objectives and levels of mastery that will be used as explicit achievement criteria, goals that have been established and have contributed to the competencies being studied.

Aspects or domains contained in the concept of competence as follows 1. Knowledge (knowledge), namely awareness in the field of cognitive 2. Understanding (understanding), namely the cognitive and affective depth possessed by individuals. 3.

Ability (skill) is something that is owned by the individual to perform the task or work assigned to him. 4. Value (value), is a standard of behavior that has been believed and psychologically has been united in a person. Attitude, ie feeling or reaction to a stimulus that comes from outside 6. Interest is the tendency of a person to do something deed. Gordon (1988: 109)

Competence in smk graduates is very important for as capital to enter the world of work, smk in Banten Province has great potential to enter the world of work and business the number of automotive industry and manufacturing industry in Banten province seen from the data on the industrial sector in the cilegon cikande and tangerang city, the number of labor needs that must be prepared in accordance with the field then the role of teaching factory teaching in smk is very important to print graduates who have competent in accordance with the field then the development-development that is done by the government to prepare a competent graduate smk good in terms of knowledge, ability, understanding, or attitude. In this research intends to describe the problems of application of teaching factory in smk based on the readiness of educators, infrastructure supporting facilities and readiness to enter the industrial world.

RESEARCH METHODOLOGY

The research method used in this research is descriptive quantitative. Source obtained from smk located in the area of Banten Province, in which SMKN 2 Pandeglang, SMK Ypp Pandeglang, SMKN 7 Pandeglang, SMKN Agriculture Serang City, SMKN 1 Cikande, SMKN 1 Cilegon And SMKN 4 Serang City, This study was carried out in month october 2017 until januari 2018, the number of respondents who can reach 30 respondents, the number in this aspect reaches 3 aspects such as readiness of educator / teacher, infrastructure supporting facilities, and preparedness keterserapan DU / DI, the item in this questionnaire amounted to 34 grains.

This research uses data collecting technique that is questionnaire which is complete with open answer statement, compiled using Likert scale 4. In this research using descriptive statistical analysis technique. This research expresses the problem on applying Teaching Factory to Student Competence Improvement. Assessment of scores on the questionnaire items are grouped into four categories of assessment, where the assessment is excellent / very high, good / high, low / low, very less / very low with the interval scale in the table below.

Table 1 Scale Interval And Categorization Score Data

		Interval	Category	
Mi + 1,5 SD		$< X \leq$	Mi + 3 SD	Very Good / Very High
Mi		$< X \leq$	Mi + 1,5 SD	Good/High
Mi - 1,5 SD		$< X \leq$	Mi	Less / Low
Mi - 3SD		$\leq X \leq$	Mi - 1,5 SD	Very Less / Very Low

Information:

- Xi/Mi = Average ideal score
- = $\frac{1}{2}$ (maximum score + minimum score) SBi/SD
- = Standard deviation of ideal score
- = $\frac{1}{6}$ (maximum score - minimum score)
- X
- = Actual score(scores achieved)
- Ideal maximum score = Σ item criteria x highest score
- Ideal minimum score = Σ item criteria x lowest score

Quantitative descriptive analytical method besides using description on score scoring with 4 categories in the form of interval there is also form interpretation of interval data with highest percentage scale 100% and lowest scale reached 25% according to likert scale that is 4 equal to 1, so ideal score average Mi by 62%

and standard deviation reach 12.5% form interpretation table in the form of interpretation of interval data like table below. In the interpretation criteria below use to analyze the research results of the questionnaire instrument in use.

Table 2. Table of Interpretation Criteria Interval Data

Interval %		Category	
81	$< X \leq$	100	Very Good/Very High
63	$< X \leq$	81	Good/High
44	$< X \leq$	63	Less/Low
25	$\leq X \leq$	44	Very Less/Very Low

RESULT AND DISCUSSION

Teaching factory to increase student competence in Banten.
Factors of teaching factory problems in the readiness aspect of teachers / teachers, supporting infrastructure and supporting facilities DU / DI support.

Aspects of Readiness Teachers / Teachers

Aspects of readiness of educators on the categorization of indicators divided into three indicators such as 1) educator / teacher background 2) understanding of teaching factory teaching 3) good personality competence and have high

professionalism. From the three indicators in the teacher preparedness aspect, the statement item is grouped into 16 points of scoring statements from the points of minimum score of the grain is 1 and the maximum score of the grain is 4, then the range of the skordi is set to 16 to 64 the average of Mi obtained at 40 and the standard deviation in SDi obtained by 8.

In the descriptive statistic analysis shows the results obtained from 30; respondents obtained with the acquisition of a mean value of 51.7; median value of 54; and

a fashion value of 58; of the data obtained in the aspect of teacher readiness. In this aspect has a standard deviation of 0.77; the standard variant is 0.60, while the minimum value of teacher preparedness aspect can be 25 and the maximum value is 63 total score in this aspect is 1551. From the data obtained in the aspect of teacher readiness the range $R = 63 - 25 = 38$; while the number

of classes $K = 1 + 3.3 \log 30 = 5.8745$ in round to 6, and length at intervals $P = 6.33$ results are obtained from $38 : 6 = 6.33$ in round to become 6. The data obtained result of dispersion of questionnaire instrument of teaching factory implementation on aspect of readiness of human resources in teacher, the data can be seen from Table 3.

Table 3. Variable Data Distribution Viewed On Aspects of Readiness of Teacher Educators / Teachers

No	Interval	Frequency	Relative frequency	Relative cumulative frequency
1	25 -30	1	3%	3%
2	31 - 36	1	3%	6%
3	37 - 42	2	7%	13%
4	43 - 48	5	17%	30%
5	49 -54	7	23%	53%
6	55 - 63	14	47%	100%
Amount		30	100%	

The results of data from the variability of the teaching factory implementation variables that are viewed from the aspect of the readiness of human resources on educators / teachers by comparing data with the results of empirical research with the criteria in the set, then the result of empirical data is 43.63 the result is greater than from the average set at 40. The results are indicated from the teacher readiness indicators such as the background of an

educator, the ability of educators to understand teaching factory teaching and the professional nature of an educator / teacher of the data shows that the aspect of teacher readiness is very high when viewed from these three indicators, the results the tendency of the teacher / teacher readiness to differentiate to 4 scans and the number of ranges reaches 16 to 64, the presentation of the tendency score data can be seen from table 4 below.

Table 4. Score Percentage Trends Teaching Factory Against Student Competence Improvement In Banten in View From Aspect of Readiness of Teacher Educator / Teacher.

	Interval		Category	Frequency	Percentage
52	$< X \leq$	64	Very High	19	63%
40	$< X \leq$	52	High	7	23%
28	$< X \leq$	40	Low	3	10%
16	$\leq X \leq$	28	Very Low	1	3%
Total				30	100%

The percentage of data tendency that can be on the readiness aspect of the teacher / teacher is the readiness of the teacher such as the background of an educator, the ability of educators to understand teaching factory teaching and the professional nature of an educator / teacher has very high category, this data in accordance with the results have been analyzed descriptive in ketahuai achievement score of a variable by comparing the scores in the can with the highest score in the set.

Variable of teaching factory implementation to increase student competence in review from aspect of readiness of human resources of educator have total score of 1551 and highest score set in 1920, if calculated from percentage of result score percentage equal to 81% from result of high score which set in very good category . Aspects of teacher preparedness of teachers like the background of an educator, the ability of educators to understand teaching factory teaching and the professional nature of an educator / teacher is very important to support the improvement of student competence.

The result of the research is in line with the Law No.20 2003 article 39 paragraph (2) stating that educators are professionals in charge of planning and implementing the learning process, assessing the learning outcomes, membimbing and training and increasing the knowledge and ability of the students.

Infrastructure Support Facilities Practice

Aspects of supporting facilities for practical implementation of teaching factory to increase students' competence have two indicators, namely: 1) appropriate infrastructure facilities according to DU / DI standard, 2) application of the use and maintenance of practice tools in accordance with DU / DI. Of these two indicators have 8 items of questions that are described to see the improvement of student competence. Scoring on this aspect is 1 minimum score and 4 maximum scores while the score range is set is 8 to 32 while the mean criteria of MI 20 and at standard deviation obtained by SDI 4.

The result of descriptive analysis of aspects of infrastructure supporting the practice of improving students' competence of the respondent's answer has 30 respondents, obtaining the mean result 25,23; median 26 and modes 26 this data has a standard deviation of 0.78; and variants of 0.61; the value obtained from this aspect is the 12 minimum values obtained and the maximum value of 32, the total score obtained from the entire SUM757 variable from this data to obtain the amount of the range in the set amounted $R = 32 - 12 = 20$ while the number of classes in the can be $K = 1 + 3.3 \log 30 = 5.87$ This result is rounded to 6 and the length of the variable $P = 20: 6 = 3.3$ is rounded to 3, the result of infrastructure aspects is presented in table 5 below.

Table 5. Distribution of Variable Data On Aspects of Infrastructure Facility Supporting Student Competence Improvement.

No	Interval	Frequency	Relative frequency	Relative cumulative frequency
1	12	14	1	3%
2	15	17	0	0%
3	18	20	3	10%
4	21	23	6	20%
5	24	26	8	27%
6	27	29	9	30%
7	30	32	3	10%
30			100%	

The result of the calculation is obtained from the average of empirical research result is 25,23 the value obtained is greater than the average value which is set at 20, it shows that from the aspect of supporting facilities teaching facilities to increase student

competence in Banten is categorized as very good / high, the tendency of each score to differentiate into 4 categories with a rantang distance between 8 to 32. Range on this aspect is presented in table 6 below.

Table 6. Percentage of Trend Score Variable Infrastructure Facility Support Teaching Factory To Increase Student Competence In Banten

Interval	Category	Frequency	Percentage
26 < X ≤ 32	Very high	12	40%
20 < X ≤ 26	high	14	47%
14 < X ≤ 20	Low	3	10%
8 ≤ X ≤ 14	Very low	1	3%
Total		30	100%

Based on the percentage of trends in aspects of infrastructure supporting facilities in review of the two indicators including good / high category to very good / very high category. This is in line with the results that have been in the descriptive analysis presented by comparing the total score in the can on the aspect of the means of prasana with the highest score that is set on aspects of infrastructure facilities. The overall score on this aspect is SUM757 and the highest score that is set on the aspects of supporting infrastructure is 960 and the

percentage of achievement score is 79%, the high score is set in the good / high category.

The result that can be on the aspect of infrastructure supporting facilities shows that the role of infrastructure facilities in greatly affect the increase in student competence in view of existing indicators on aspects of infrastructure facilities, data analysis can be obtained from each respondent that the infrastructure needs are very feasible and support according to the acquisition of data in the maximum score yan in can with the score set in the variable.

The results of the infrastructure aspects are consistent with Law No. 20 of 2005 paragraph 1, which states that each formal and non-formal education unit provides facilities and infrastructures that meet educational needs according to the growth and development of physical, intellectual, social, emotional and psychological potential of participants educate. The law illustrates that the output quality / graduates are intelligent, productive and capable of high competitiveness is greatly influenced by the means of infrastructure that in the meantime must be adequate and meet the provisions of drinking standards are set, and reviewed from effective and efficient learning.

Readiness Support Cooperation DU / DI

Aspects of readiness to support the cooperation of DU / DI are presented in four indicators, namely: 1) limiting cooperation 2) form of cooperation yng in 3) provision of infrastructure facilities 4) work done by DU / DI cooperative, from four indicators

described into 10 points statement, the minimum score value of the grant is 1 and the maximum score reaches 4, the ranges are set to have 10 to 40 with an average criterion of MI 25 and standard deviation criteria of SDI 5.

The result of descriptive statistical analysis on this aspect shows the answer of 30 respondents, the result obtained the mean value of 27.03; median value of 27.5; and the value of the mode of 28 data has a standard deviation of 0.74; and the standard variant of 0.55, the minimum value that can be in this aspect is 15, while the maximum value can reach 37, and the amount obtained from the whole indicator in this aspect of SUM 811, based on the results obtained that the magnitude of the range can be determined $R = 37 - 15 = 22$ the number of kelas yang in can $K = 1 + 3.3 \log 30 = 5.87$ in round to 6 and has a length interval $P = 22 : 6 = 4$. Data spread of scores are presented in the table 7 below.

Table 7. Distribution of Variable Data Frequency Aspects of Readiness to Support Cooperation DU / DI Teaching Factory To Increase Student Competence In Banten

No	Interval	Frequency	Relative frequency	Relative cumulative frequency
1	15	18	1	3%
2	19	22	3	10%
3	23	26	9	30%
4	27	30	12	40%
5	31	34	3	10%
6	35	38	2	7%
Amount		30	100%	

The tendency of variable data on the aspect of readiness supporting the cooperation of DU / DI can be known by comparing the average size with the average

result set in this research the amount of result set in 25 and the average in the empirical research on the readiness of cooperation DU / DI of 27.03, then the

results obtained from the magnitude shows that the amount of empirical research on this aspect is greater than the result set.

The percentage of trends in the scores of readiness aspect for DU / DI cooperation is

Table 8. Presentation of Variable Score Trend In Aspect of Readiness to Support DU / DI Cooperation

	Interval		Category	Frequency	Percentage
32,5	$< X \leq$	40	Very High	4	13%
25	$< X \leq$	32,5	High	14	47%
17,5	$< X \leq$	25	Low	11	37%
10	$\leq X \leq$	17,5	Very Low	1	3%
Total				30	100%

The data of the percentage of trends from the aspect of the readiness of DU / DI cooperation in the know from the indicator indicator that is to provide limits of cooperation, the form of cooperation in the live, the provision of infrastructure facilities, work done DU / DI cooperative is larger data in can compare data which is set in the variable. Variable in review from aspect of readiness of cooperation of DU / DI get total score from this aspect equal to 811 and result set at 1200, hence variable percentage if counted reach 68% this result indicate that magnitude on this indicator is indicated on indicator give limit of cooperation and indicators that have the lowest acquisition in the show on the provision of infrastructure by the industri, thus the factors supporting the cooperation DU / DI greatly affect the teaching factory to increase student competence seen from the indicators of achievement of results is still lack of form of supply cooperation cooperation tools and infrastructure facilities penungjang DU / DI,

greater than the indicator indicator on the aspect of cooperation readiness DU / DI trends of each score are differentiated into 4 categories ranging from 10 to 40 detailed in the table 8 below this.

hence there are obstacles from the aspect of cooperation readiness of DU / DI in view from indicator 1) to give limit of cooperation 2) form of cooperation yng in live 3) provision of infrastructure facilities 4) work done by DU / DI cooperative.

CONCLUSION

1. From the aspect of the readiness of human resources on the educator showed the high / good to very high / very good at see the data at gained 81%, from the total number of mencapi total 1551 and the highest score set 1920, from the results of high scores are set in very category good. Aspects of teacher preparedness of teachers like the background of an educator, the ability of educators to understand teaching factory teaching and professional nature of an educator / teacher is very important to support the improvement of student competence

2. From the aspect of supporting facilities of teaching factory implementation to increase student competency in review from two indicators including good / high category until very good / very high category. This is in line with the results that have been in the descriptive analysis presented by comparing the total score in the can on the aspect of the means of prasana with the highest score that is set on aspects of infrastructure facilities. The overall score on this aspect is SUM757 and the highest score that is set on the aspects of supporting facilities of practice is 960 and the percentage of achievement score of 79%, high score set in good / high category.
3. From the aspect of the readiness of DU / DI cooperation to show the results of high / good value can be obtained in 811 and the results are set at 1200, then the percentage variables if the count reaches 68% of these results indicate that the magnitude of this indicator in the show earned most high on indicator gives the limitation of cooperation and indicator which have lowest acquisition shown in indicator of infrastructure provision by industri, thus there is still lack of form of supply cooperation cooperation of equipment and supporting infrastructure of DU / DI. The aspects of readiness of DU / DI cooperation are strengthened with the

results of interviews obtained in each respondent, from the results of the interviews are: 1) the lack of granting of restrictions on cooperation done by schools with DU / DI 2) still lack of tools and sarapa prakti tools from DU / DI . 3) the form of cooperation undertaken not in accordance with school expectations.

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