

Implementation of The Teaching Factory Learning Model and its Influence on Student Work Results and Consumer Satisfaction

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Abstract

This article is the result of field research in three schools in Aceh Besar. This research consists of two related studies. The first focuses on answering the hypothesis about the effect of implementing a teaching factory on student work using the one-group pretest-posttest design method. Students will be given a pretest first to assess the results of their initial work. After that, they are given the teaching factory treatment and then a post-test for the results to be compared to assess whether the treatment has an effect. The second research the author wants to examine in this article is consumer satisfaction with the work. Using the survey method, the data obtained is calculated based on the satisfaction references percentage. The sample in this study consisted of 30 students to evaluate work results using the one-group pretest-posttest design method and 30 consumers to assess the level of consumer satisfaction with student work. Based on the data obtained, the researchers concluded that there was a significant influence on student work results after treatment. The average post-test result increased to a pretest value of 18.66667 with sig. 0.000, which means significant. The result value of the t count is 37.405, greater than the t table of 2.045, which means that the application of teaching factory learning is very effective in improving student work results. Then for the consumer satisfaction results, it was obtained that 30% were very satisfied with the student work, and 70% were satisfied with the student work. With nine people feeling very satisfied and 21 people feeling satisfied, the average result is that consumers are satisfied with students' work.

Keywords

Teaching Factory; Student Work Results; Consumer Satisfaction

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1. INTRODUCTION

The technology of the globalization era is undergoing a transformation that demands readiness in the fields of appropriate management, education, and production structures. Therefore, competent people who can adapt to industrial culture are needed. These individuals must be able to think logically, manage time, have a workforce that has good and organized methods, and the ability maintain quality and fair competition. For this reason, human resources with the knowledge and attitude of professionalism are needed to determine success. Education is the determining key in preparing human resources. Education participates in influencing the country's economic growth. This is because education affects productivity and improves the quality of human resources in the future.

Learning vocational education is generally carried out by combining theoretical and practical learning. Practicum learning is an activity carried out as a direct application of competencies obtained after theoretical learning. Vocational education is a system that seeks to provide students with experience in the cognitive, emotional, and psychomotor domains to prepare them to enter the world of work and assist a person in pursuing a career in the world of work. So far, many graduates of SMK are unable and need the courage to work in official repair shops. This is because the learning system so far needs to be improved to provide the experience and skills required to work in a company/industry. Vocational education is one of the efforts to develop, maintain, accelerate, and increase workers' capacity to increase people's productive power.

The teaching factory is a learning model that needs to be implemented by SMK. This model demands a synchronization between the school curriculum and the needs of the industrial world. The teaching factory learning concept focuses more on education oriented to market needs. Therefore, students are provided with skills and knowledge in entrepreneurship and are involved in the business/industry world in the learning process. With the teaching factory, students will feel how the process and work standards are applied in the industry. (Stavropoulos, 2018). According to (Wijaya, 2013) the basis of the teaching factory arises due to three reasons, namely:

- a. Ordinary learning that is felt inadequate,
- b. Students gain practical experience, and
- c. Group learning experiences involving students, teachers and industry increase the teaching repertoire and provide benefits for all parties.

Teaching factory learning is a production/service-based learning approach that uses industry standards and practices and is implemented in an environment very similar to industry. Industry must be fully involved in implementing the teaching factory as a party that evaluates the effectiveness of educational outcomes in SMK. (Rentzos, 2015). According to (Iswahyudi, et al, 2009), production-based learning, also known as a teaching factory, is a method for acquiring knowledge or skills that are planned and practiced based on real work practices and standards to create services and goods that meet expectations of market or customer. The aim of the teaching factory, as suggested by (Alptekin et al. 2001) in a paper presented at the American Society for Engineering Education Annual Conference and Exposition, is to create graduates who are experts in their fields, develop curricula that focus on the latest concepts, to point the right direction to every challenge facing the industrial world, and technologists from industry who partner with students and educational institutions.

The work results of students at SMK still need to be higher than those in the industry. Students still work using conventional methods, which are considered faster and more practical without following predetermined SOPs. (Diwangkoro, 2020) says, "Work results are a result achieved by a person in completing the tasks assigned to him based on his ability, experience, sincerity, and availability." According to (Ferawati, 2017), a person's work results in a job are measured by the results they produce according to job criteria; when those results are met, employees are rewarded financially, professionally, or otherwise. According to (Tanjung, 2017), work results refer to the quality and quantity of results a worker achieves while carrying out the tasks entrusted to him. (Arif, 2020) Also, work results result

from the quality and quantity of a person's work completed when carrying out his obligations by the assigned tasks.

Simanjuntak (2017) said to assess employee job performance, six factors are used, namely:

- a. Quality is the amount of capacity to create per the company's quality requirements.
- b. Quantity, capacity to be creative according to the number of standards the company sets.
- c. On time, the extent to which an activity is completed within the targeted time, considering the coordination of other outputs and the time allotted for other activities.
- d. Cost-effective, the extent to which human, financial, technical, and material resources can be optimized.
- e. The amount of an employee's ability to work carefully without monitoring from superiors.
- f. Interpersonal input refers to the employee's ability to maintain self-esteem, reputation, and collaboration among colleagues and subordinates. It can be concluded that work results are a consequence of a person's work results, both in terms of quality and quantity, to stimulate the realization of expected goals. So, work results are a consequence of one's work in terms of quality and quantity to stimulate the realization of the expected goals.

SMK graduates must be able to meet the needs of the world of work, which is growing rapidly in all fields. Vocational schools must equip students with knowledge and skills that are also in line with developments in the industrial world to meet these needs. Knowledge, skills, and attitudes are imparted as part of the learning process, which includes theoretical teaching in the classroom and hands-on training in practical workshops. These three competencies are given simultaneously so that they can complement each other. This is by the idea of vocational education, which is to prepare mid-level technicians to work in industry and to fill new job vacancies as a result of the expansion of the industrial world. (Hasbullah, 2010).

Apriyani and Sunarti (2017) reveal that "Satisfaction is the feeling of someone who comes after comparing the performance obtained with the desired performance." According to (Setyo, 2017), consumer satisfaction is the customer's expectations before buying are actually obtained by consumers from the goods purchased, is a theory that explains how consumer satisfaction or dissatisfaction is generated. According to (Harianto, 2013), consumer satisfaction is the most important idea in marketing thinking and consumer research. According to (Setiawan. et al., 2019), the following variables must be examined to estimate the level of customer satisfaction:

- a. Product quality, if the customer's assessment shows that the goods they use are of very good quality, the customer will certainly be happy.
- b. Quality of service, in the service business, it is certain that customers will be satisfied if they get excellent service or service that is as expected.
- c. Emotionally, customers certainly feel proud and believe that other people will be impressed with them when using a product with a certain brand, causing greater pleasure.

In principle, happy customers with a product, service, or brand are more likely to purchase it again and recommend it to others. After conducting observations and interviews with a number of consumers who entrusted the servicing and repair of their motorbikes at SMK, the results were not good. The consumer response was dissatisfied with the performance and work of SMK students, which were considered not good. Many students still work roughly and are not by the SOP. Students are also considered unsafe when working and not clean and neat in doing work, so not a few consumers are dissatisfied with students' work. Some consumers don't want to come back.

The author is interested in doing this research because previous research on teaching factory implementation has varied results and does not always provide significant results on learning outcomes. Research conducted by (Rayyan. M et al., 2019) stated that the results of teaching factory learning did not produce positive results. This is different from the results of research that the authors

obtained, where the results provided positive results. Furthermore, research conducted by (Wahjusaputri. S et al., 2017) stated that there was an increase in students' average scores after implementing teaching factory learning, this is in line with the results of the research that the authors conducted, but there were differences in testing between Wahjusaputri's research. S, et al. with the research that the author did where the author examines the results of work while Wahjusaputri. S, et al. about the quality of learning. Then there is also research conducted by (Sugiarti. Y et al., 2018) which shows that the application of the teaching factory has an effect on student competency tests at SMKN 1 Kuningan. The practical competency test results show that almost all students have reached the very proficient category. Here are the results of research conducted by Sugiarti. Y et al., in line with the results of the author's research, and also the same in practicum research, so to differentiate the author also examine consumer satisfaction from the results of these practices.

2. METHODS

This research uses a quantitative approach, namely research techniques used to evaluate certain populations or samples, collect data using research tools, and analyze statistical data with the aim of testing the hypotheses that have been compiled (Sugiyono, 2018). There are two methods that the researchers will use in this study, namely, the experimental method to assess student work and the survey method to assess consumer satisfaction with student work. Experimental research is a method used to find the effect of a particular treatment on another under controlled conditions (Sugiyono, 2018). While the survey method is used to obtain certain data naturally, researchers carry out the treatment in data collection (Sugiyono, 2018).

The form of experimental design that the researcher will use is the One Group Pretest-Posttest Design. In this study, the sampled group was given a pretest before and after treatment. A post-test was given to see the differences before and after treatment. After the One Group Pretest-Posttest Design experiment was carried out, consumers were given a questionnaire survey of consumer satisfaction on student performance and work results.

This research was conducted at three schools, namely SMKN 1 Kota Jantho, SMKN 1 Darul Kamal and SMKS Mahyal Ulum, where in this study carried out practicum by students on vehicles. The practice was carried out by ten students at each school so that 30 students would be used as research samples. As a first step, students will be given a pretest to assess initial abilities, after which they are given treatment using the teaching factory learning model. Then a post-test was carried out to assess the work results after the treatment and see an increase in student work results. After the post-test was carried out, questionnaires were distributed to consumers to assess the level of consumer satisfaction with student work.

The instrument used in testing student work results uses a work test sheet that the teaching teacher will assess. Then after the test is carried out, a questionnaire will be distributed to consumers whose vehicles are used for practicum. After the data on student work is obtained, the data is processed using the paired sample test statistical method with the formula (Sugiyono, 2019):

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} - 2r \left(\frac{s_1}{\sqrt{n_1}} \right) \left(\frac{s_2}{\sqrt{n_2}} \right)}} \quad (1)$$

to process the data obtained assisted by using the SPSS 25 application to avoid human error.

Furthermore, to assess consumer satisfaction using a questionnaire with a Likert scale, then the data is entered into formula 2 (Narimawati, 2007) then seen the percentage of satisfaction with the help of the consumer satisfaction index table in Table 1.

$$\% \text{ score} = \frac{\text{actual score}}{\text{ideal score}} \times 100\% \quad (2)$$

Table 1. Consumer Satisfaction Index

No.	Indeks Value	Satisfaction Level
1	81% - 100%	Very satisfied
2	66% - 80.99%	Satisfied
3	51% - 65.99%	Quite satisfied
4	35% - 50.99%	Less satisfied
5	0% - 34.99%	Not satisfied

Source: Fitriana et al (2014)

3. FINDINGS AND DISCUSSIONS

Student Work Result

The research was conducted in three schools, with ten students in each school as the sample, so a total sample of 30 people was obtained. Before testing the paired sample test, the data obtained is tested for normality to determine whether the data is normally distributed. The test uses the Shapiro Wilk test because the data is less than 50, for the normality test results are presented in table 2. From Table 2, it can be seen the results of the normality test where the pretest significance value is 0.090, and the post-test is 0.146. If the data is > 0.05 , it is declared significant, which means that the pretest and post-test data are normally distributed.

Table 2. Shapiro Wilk normality test

	Statistic	df	Sig.
Pretest	.940	30	.090
Posttest	.948	30	.146

Source: SPSS 25

The test results data are presented in the form of graphic images. The graph presented juxtaposes the pretest and post-test scores. Where Figure 1 shows the pretest and post-test results of SMKN 1 Kota Jantho students, Figure 2 shows the pretest and post-test results of SMKN 1 Darul Kamal students, and Figure 3 shows the pretest and post-test results of SMKS Mahyal Ulum students.

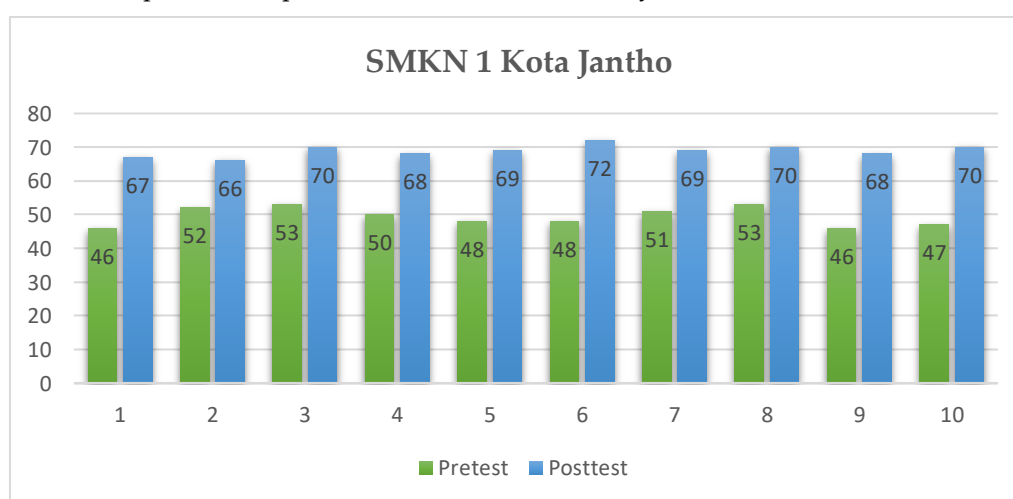


Figure 1. Pretest and post-test results of SMKN 1 Kota Jantho students

From Figure 1 it can be seen that the lowest pretest score was 46, and the highest was 53. After the treatment, the lowest post-test score increased to 66, and the highest score was 72. There was an increase

in student work results between before and after being given treatment. In addition, the average pretest score was 49.4, and the average post-test score was 68.9, which means there was an increase in the score of 19.5 for SMKN 1 Kota Jantho.

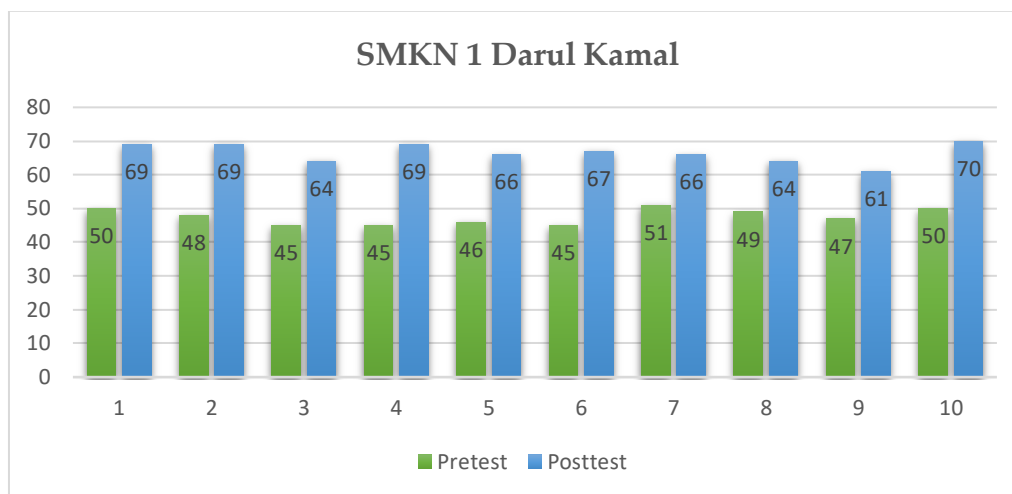


Figure 2. Pretest and post-test results of SMKN 1 Darul Kamal students

From Figure 2, it can be seen that the lowest pretest score was 45, and the highest was 51. After the treatment, the lowest post-test score increased to 61, and the highest score was 70. There was an increase in student work results between before and after being given treatment. In addition, the average pretest score was 47.6, and the average post-test score was 66.5, which means there was an increase in the score of 18.9 for SMKN 1 Darul Kamal.

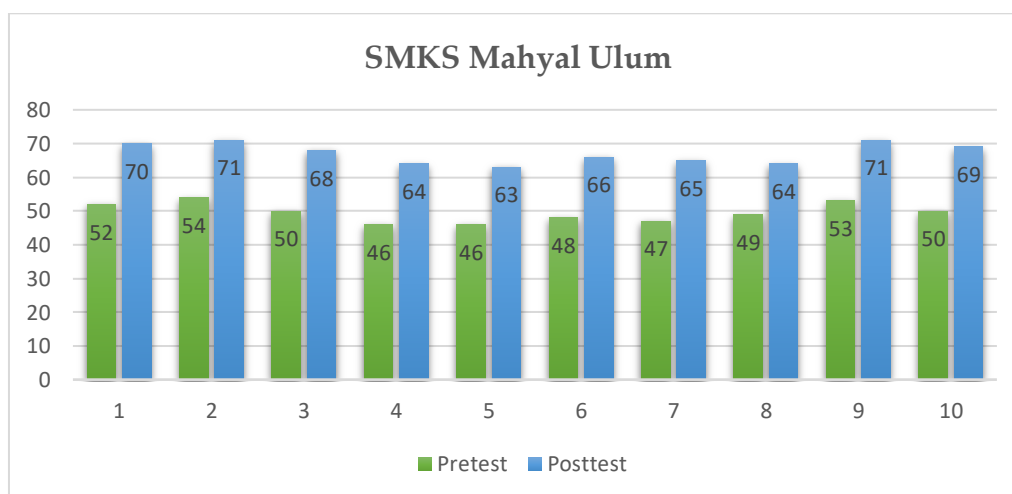


Figure 3. Pretest and post-test results of SMKS Mahyal Ulum students

From Figure 3 it can be seen that the lowest pretest score was 46 and the highest was 54. After the treatment, the lowest post-test score increased to 63 and the highest score was 71. There was an increase in student work results between before and after being given treatment. In addition, the average pretest score was 49.5 and the average post-test score was 67.1, which means there was an increase in the score of 17.6 for SMKS Mahyal Ulum. To calculate the statistical test and assess the significance level of this study, the paired sample t test was used with the help of the SPSS 25 application.

Table 3. Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pretest	48.8333	30	2.70483	.49383
Posttest	67.5000	30	2.73861	.50000

Table 3 presents the average calculation data for all samples from three schools, with an average pretest score of 48.8333 and a post-test average score of 67.5000, with an increased value of 18.6667. Furthermore, the paired sample test results are presented in table 4.

Table 4. Paired Samples Statistics

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair Pretest- Posttest	-18.66667	2.73336	.49904	-19.68732	-17.64601	-37.405	29	.000

The results of the paired sample t-test shown in Table 4 show a significant level of 0.000, which means < 0.05 , so the study results get significant results. This means that implementing teaching factory learning is very effective in increasing student work results. Furthermore, for t count, according to (Raharjo, 2016) t count is negative because the average value of the pretest results is lower than the average value of the post-test, so in this context, a negative t count means positive. The value of t count results is 37,405, greater than t table of 2.045, which means that implementing factory learning is very effective in improving student work results.

Consumer Satisfaction

The survey technique was carried out to test consumer satisfaction. The survey was conducted using a questionnaire given to consumers. 20 statements will be assessed by consumers using a Likert scale, with the maximum score that can be obtained is 100 and the lowest score is 20. The statements contain about work methods, work attitudes and student work results. To make it easier for customer satisfaction data presented in the form of diagrams.

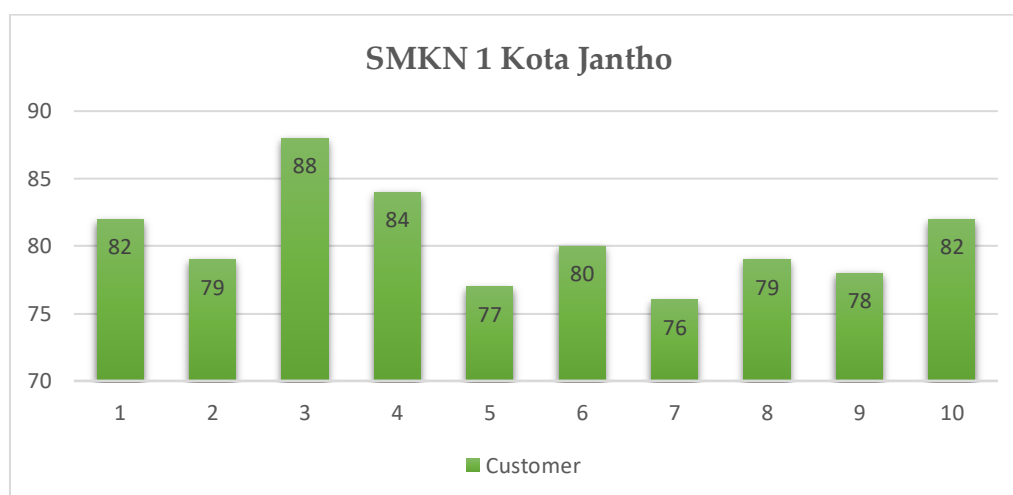


Figure 4. Customer satisfaction data of SMKN 1 Kota Jantho

From Figure 4 it can be seen that the level of customer satisfaction at SMKN 1 Kota Jantho varies, with the lowest result being 76, the highest score being 88, and the average being 80.5. Based on Figure 4, from 10 customers, there are 4 consumers with a delighted level of satisfaction and 6 consumers with a satisfied level of satisfaction. This is because different students service each customer's vehicle. So, the assessment of customer satisfaction is different. but overall, the average customer is satisfied with the work of students.

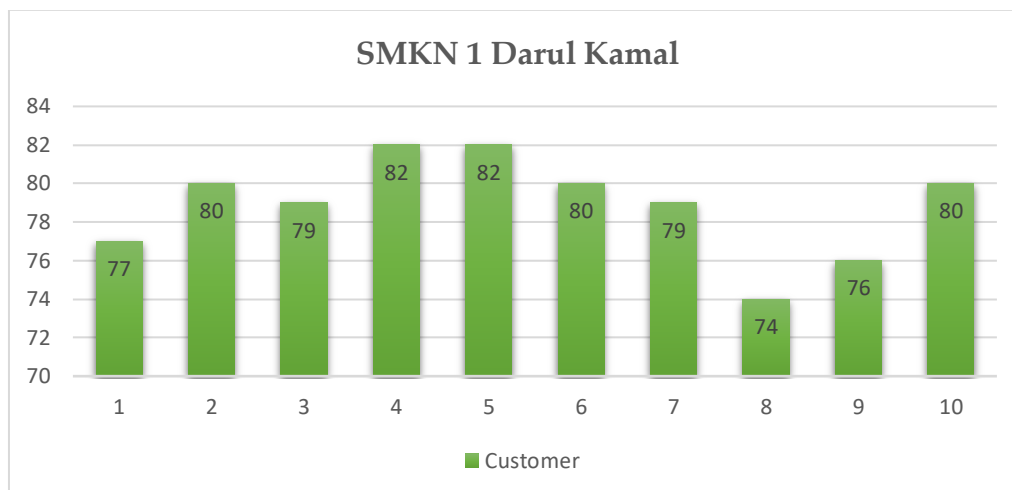


Figure 5. Customer satisfaction data of SMKN 1 Darul Kamal

From Figure 5 it can be seen that the level of consumer satisfaction at SMKN 1 Darul Kamal varies, with the lowest result being 74, the highest score being 82, and the average being 78.9. Based on Figure 5, from 10 customers, there are 2 consumers with a delighted level of satisfaction and 8 consumers with a satisfied level of satisfaction. This is because different students service each customer's vehicle. So, the assessment of customer satisfaction is different. However,

overall, the average customer is satisfied with the work of students.

From Figure 6 it can be seen that the level of consumer satisfaction at SMKS Mahyal Ulum varies, with the lowest result being 76, the highest score being 84, and the average being 79.5. Based on Figure 6, from 10 customers, there are 3 consumers with a very satisfied level of satisfaction and 7 consumers with a satisfied level of satisfaction. This is because different students service each customer's vehicle. So, the assessment of customer satisfaction is different. However, overall the average customer is satisfied with the work of students. Overall customer satisfaction results from 30 consumers were 9 people feeling very satisfied and 21 were satisfied. This means that the overall results of consumers are satisfied with the results of student work.

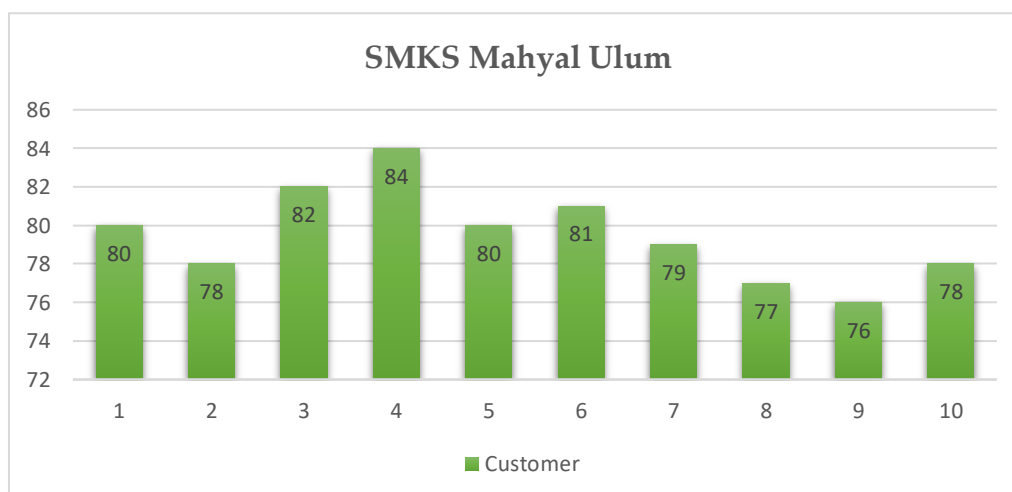


Figure 6. Customer satisfaction data of SMKS Mahyal Ulum

4. CONCLUSION

Based on the research that has been conducted to assess the implementation of the teaching factory learning model on student work results and consumer satisfaction, which has been implemented in three schools. It can be concluded that the teaching factory learning model significantly improves student work results and consumer satisfaction. This can be seen from the average increase in student work at SMKN 1 Kota Jantho by 19.5, SMKN 1 Darul Kamal by 18.9, and SMKS Mahyal Ulum by 17.6. also proven by the results of the paired sample t-test statistic, which shows the sig. 0.00 means significant. It doesn't stop there. It is also proven by t count $37,405 > t$ table 2,045.

The research also obtained consumer satisfaction results where SMKN 1 Kota Jantho obtained results of 40% very satisfied and 60% satisfied. Furthermore, SMKN 1 Darul Kamal obtained 20% very satisfied and 80% satisfied results. Lastly, SMKS Mahyal Ulum obtained 30% very satisfied and 70% satisfied results. With the conclusion of the accumulation of three schools, the results obtained are 30% very satisfied and 70% satisfied.

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