

## Implement Explicite Instruction for Building Innovative Vocational Student Discipline and Culture

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**Abstracts.** The results of Widarto's research, Putut H., Prihatno K., (2018) show that the score of work discipline culture and innovative culture in the implementation of learning of industrial work culture in Diploma – III Mechanical Engineering students is still low. Each scored 2.78 and 2.67 on a scale of 4. The current study aims to: (1) Build a culture of work discipline and innovative culture in Diploma – III students of Mechanical Engineering through the implementation of the Explicite Instruction learning model; (2) Measuring the effectiveness of the Explicite Instruction learning model in enhancing the work culture of innovative aspects and the culture of work discipline in Diploma – III students of Mechanical Engineering, Faculty of Engineering, Yogyakarta State University. The method used is classroom action research (CAR). The subject of the study was 15 Diploma – III students of Mechanical Engineering. This class action research design consists of four stages of each cycle, namely planning, action, observation, and reflection. The results showed that: (1) Implementation of Explicite Instruction went well as expected and can be said to be successful because it reached the targets set as success criteria. The optimal implementation of Instruction requires 3 to 4 cycles; (2) Explicite Instruction is effective in enhancing student culture and innovative culture. This can be seen from the increase in the average score of discipline culture in each cycle in a row: 2.85; 2.98; 3.53; 3.67 and an increase in the average score of innovative culture each cycle in a row: 2.71; 2.84; 3.29; 3.42.

**Keywords:** explicite instruction, disciplined, innovative

### Introduction

Diploma-III of Mechanical Engineering, Faculty of Engineering, Yogyakarta State University (Diploma-III TM FT UNY) is a vocational education Department that is held to produce professional staff, especially in the field of Mechanical Engineering. The orientation of the Diploma-III TM FT UNY graduates includes filling in the formation of: (1) Industrial professional staff, (2) Industrial technicians, (3) Technicians in education, and (4) Professional Entrepreneurs in Mechanical Engineering. It seems clear that graduates from the Diploma-III of Mechanical Engineering Department are expected to develop their potential to become professionals in the field of Mechanical Engineering, especially in the manufacturing sector which includes the subfields of welding, machining, and design.

Talking about professionalism in the industrial world, it is closely related to three domains based on Bloom's taxonomy, namely: (1) skill; (2) knowledge; and (3) attitude [1]. These three aspects are very influential and interrelated with one another if you want to become a professional in the world of work or the industrial world. However, not necessarily graduates from a campus must have everything perfectly. The industry is still stigmatizing that students who graduate from university are not necessarily ready to work, but they are actually ready to learn [2]. The understanding of learning here is no longer learning like on campus, but learning through work in terms of mastering certain fields needed by an industry.

Skills, knowledge, and attitudes are three areas of competency that must be possessed by every worker. Among the three, which can provide opportunities for great success in the world of work is a good work attitude. Attitudes in relation to work or industry can be interpreted as work attitudes or work attitudes. The attitude of work in an industry that has taken root will become a culture, which people usually knowing as the industrial work culture [3].

Studies on industrial work culture, especially the manufacturing industry, are currently not widely conducted. Even though industrial work culture is very complex and there is a lot that can be explored for its potential for continuous improvement. Most of the vocational education world which has the responsibility to produce graduates ready for work still considers work in industry to be limited to processing raw goods into finished goods so that the learning that is carried out only focuses on improving practical competence [4]. In fact, success in carrying out work in industry is not only related to this matter, but also closely related to the work culture that must be owned by a worker.

Vocational education is one of the main axis in the country's economy, both developed and developing countries, like Indonesia. Vocational education has the role of preparing graduates who are ready to work according to the needs of the industry as economic support [5]. The results of Slamet PH's research (2011) conclude that vocational education can play a maximal role in economic development if its harmony with the world of work around it is pursued continuously, both in terms of quantity, quality, location, and time. Therefore vocational education must be able to ensure the alignment of practical competencies and the alignment of work culture in vocational learning with industrial work culture [6]

On the implementation of industrial work culture in Diploma-III TM FT UNY reached 81%. This means that the figure shows the level of achievement of industrial work culture that has been implemented in practice lectures in the learning workshop at the Diploma-III TM FT UNY. Based on the data obtained, low scores are found in the aspects of discipline and innovative culture. Scores on these two aspects are 2.78 and 2.67, respectively on a scale of 4. This shows that there are still deficiencies in the industrial work

culture that is in the aspects of discipline and innovative culture [7].

The implementation of the *Explicite Instruction* learning model for D-III TM UNY students is expected to improve the discipline and innovative culture of students in learning in the workshop.

**Methods**

The study uses classroom action research (Classroom Action Research), because this study was conducted in conjunction with the real learning process in the classroom. The subjects of the study were the 2018 Diploma-III TM FT UNY students totaling 15 students. The research was carried out in Bench Work Practice Class at Diploma-III TM FT UNY in February to April 2019.

This study uses a class action research model developed by Suharsimi Arikunto (2009). This model was chosen because at the beginning of the action found deficiencies, then improvements can be made in the next cycle until it can be completed. There are four stages of each cycle, namely planning, action, observation, and reflection. Then these four stages are called one cycle.

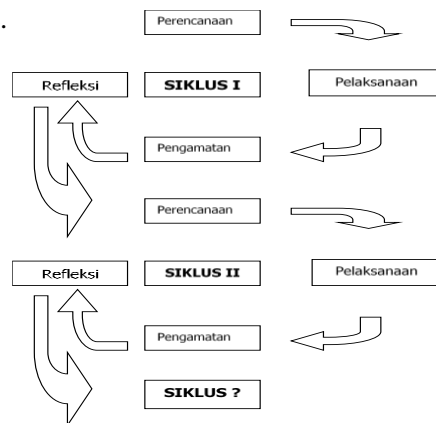


Figure 1. PTK Model (Source: [8])

Data collection uses four ways, namely observation, performance tests, questionnaires, and documentation. The instruments were in the form of questionnaires for work discipline and innovative culture, observation sheets for learning activities, work assessment sheets, reflection sheets, and documentation.

Data analysis uses descriptive statistical analysis. The statistical analysis used is to calculate the average (mean), median, mode and standard deviation (SD), the highest value, the lowest value and the percentage

The success of this class action research is measured by the achievement of success that has been determined before the action. This research cycle will be stopped if the innovative aspects of the discipline and culture of students when learning practice reaches a mean score of > 3.00 on a scale of 4 or > 75% of the ideal score.

## Results and Discussion

### Results

Observations at the beginning of the research activity showed that there were still many students who were not yet disciplined, for example late in class. Too late to enter class is still done by many students when entering class at the beginning of lecture or after recess. Likewise when doing practical work on bench work. Many students still have difficulty using hand tools such as misers, scrapers, scrapers, hammers, steel stamps, vernier caliper, and high gauge. Students have not been able to explore how to use hand tools in order to get good results. In addition,

students also still have difficulty in determining the most effective work steps in completing their work so that many students cannot complete the work in accordance with the targeted time. This reflects that innovative culture students are still low. Based on the problem The researcher tried to apply the Explicite Instruction learning model to overcome these problems, namely conditioning the class while carrying out research so that the discipline and innovative culture of students increased. Gradually, the cycle that has been carried out along with the results of the action can be reported as follows.

### Cycle I

#### Cycle Planning I

1. Make an explicit Instruction learning plan.
2. Arrange cycle schedules and actions.
3. Creating learning scenarios that contain learning objectives, class organizing, and teaching steps.
4. Choose practical assignments to be used in learning.
5. Create a jobsheet.
6. Give direction to the observer in observing the teaching and learning process in the Explicit Instruction learning model.

Table 1. Cycle Schedule 1

Cycle	Action	Date	Activity
Cycle 1	1	March 04, 2019	Carry out Explicit Instruction learning
	2	March 11, 2019	

### Implementation of Cycle I

1. Phase I (**Orientation**). Delivering learning objectives and preparing students.
2. Phase 2 (**Demonstration and / or Presentation**). Demonstrate or explain knowledge and skills
3. Phase 3 (**Structured Exercise**). Guiding training
4. Phase 4 (**Guided Exercise**). Check understanding and provide feedback.

5. Phase 5 (**Independent Exercise**).
6. Assessment and evaluation.
7. Closing

### Observation of Cycle I

Observation of student activities using observation sheets and carried out during the learning process takes place. The results are as follows.

**Table 2. Cycle Observation Results 1**

Culture	No	Observation Aspects	Score
<b>Culture of Discipline</b>	1.	Come To Class	2,93
	2.	Exit class to take a break	2,93
	3.	Enter class after break	2,87
	4.	Use of Practice Time	3,13
	5.	Seriousness doing Work	2,67
	6.	Working Time	2,73
	7.	SOP Implementation	2,53
	8.	Sanctions for those who Break the Rules	3,00
		<b>Average</b>	<b>2,85</b>
<b>Innovative Culture</b>	1.	Continual Improvement of Processes and Ways of Working	2,67
	2.	The ability to Develop New Ideas, Alternatives or Creations	2,67
	3.	Ability to Solve Problems	2,80
		<b>Average</b>	<b>2,71</b>

**Reflection Cycle I**

The learning process that uses the Explicite Instruction model has been carried out according to plan. But there are some things that appear during the implementation process such as:

1. The process of assisting and supervising on independent lecture activities is still lacking, affecting the number of students who speak on their own while the lecture process takes place.
2. Having students practice with a lot of idle time (in vain).
3. Use of accessories is not important.
4. Delay is still happening.
5. Unequal break time so that the condition becomes irregular due to the delay after the break.

The recommended corrective steps taken for the above problems are as follows:

1. Increasing the intensity of assistance and supervision in accordance with the principle of Explicite Instruction.
2. Need confirmation and advice to students to make the best use of time.

3. Emphasis on students regarding late sanctions.
4. Providing more knowledge and insights on Occupational Safety and Health and the Environment.
5. The lecturer provides additional rules based on an agreement with the student that rests at 15:00-15.30 WIB.

**Cycle II  
Cycle Planning II**

The observations of Cycle 1 stated that there were several problems in the learning process. The planning cycle 2 as follows:

1. Make plans to improve learning Explicit Instruction.
2. Arrange cycle schedules and actions.
3. Creating learning scenarios that contain learning objectives, class organizing and teaching steps.
4. Choose practical assignments to be used in learning.
5. Explain the Bench Work Practice jobsheet.
6. Give direction to the observer in observing the teaching and learning process in the Explicit Instruction learning model.

**Table 3. Cycle Schedule 2**

Cycle	Action	Date	Activity
Cycle 2	1	March 18, 2019	Implement Explicit Instruction learning and its corrective steps
	2	March 25, 2019	

**Implementation of Cycle II**

1. Phase I (**Orientation**). Delivering goals and preparing students.
2. Phase 2 (**Demonstration and / or Presentation**). Demonstrate or explain knowledge and skills
3. Phase 3 (**Structured Exercise**). Guiding training

4. Phase 4 (**Guided Exercise**). Check understanding and provide feedback
5. Phase 5 (**Independent Exercise**). Provide opportunities for advanced training and application
6. Assessment and evaluation.
7. Closing

**Observation of Cycle II**

Observations use observation sheets and are carried out throughout the learning process. The results are as follows:

**Table 4. Cycle Observation Results 2**

Culture	No	Observation Aspects	Skor
<b>Culture of Discipline</b>	1.	Come To Class	3,13
	2.	Exit class to take a break	2,93
	3.	Enter class after break	3,33
	4.	Use of Practice Time	2,67
	5.	Seriousness doing Work	2,53
	6.	Working Time	3,00
	7.	SOP Implementation	3,27
	8.	Sanctions for those who Break the Rules	3,00
<b>Average</b>			<b>2,98</b>
<b>Innovative Culture</b>	1.	Continual Improvement of Processes and Ways of Working	3,27
	2.	The ability to Develop New Ideas, Alternatives or Creations	2,60
	3.	Ability to Solve Problems	2,67
<b>Average</b>			<b>2,84</b>

**Reflection Cycle II**

The Bench Work Practice learning process that uses the Explicite Instruction model has been carried out in accordance with the plan and there are improvements in accordance with the recommendations in cycle 1. However, there are still some deficiencies during the implementation process as follows.

1. Lack of understanding from students regarding SOP after working on practices that include returning work tools, cleaning work tables, cleaning vise and cleaning the work area floor.
2. Some students don't bring jobsheets when working.
3. The level of student delays has been improved and has begun to decrease, but there are still some students who arrive late

to class with varied delays from 5 minutes to delays of more than 15 minutes.

The recommended corrective steps taken for the above problems are as follows:

1. Adding knowledge, insight and advice on practicum SOP.
2. Imposing sanctions for reducing the value of the SOP points in the work steps if violating.
3. Imposing sanctions for students who are late to clean the floor and join the picket, while for students who are more than 15 minutes late are not allowed to take practical classes.

### Cycle III

#### Cycle Planning III

The results of observations of cycle 2 stated that there were several problems in the learning process. The planning cycle 3 as follows:

1. Make plans to improve learning Explicit Instruction.
2. Arrange cycle schedules.

3. Creating learning scenarios that contain learning objectives, class organizing and teaching steps.
4. Choose practical assignments to be used in learning.
5. Explain the Bench Work Practice jobsheet.
6. Give direction to the observer in observing the teaching and learning process in the Explicit Instruction learning model.

**Table 5. Cycle Schedule 3**

Cycle	Action	Date	Activity
Cycle 3	1	April 1, 2019	Implement Explicit Instruction learning and its corrective steps
	2	April 8, 2019	

#### Implementation of Cycle III

1. Phase 1 (**Orientation**). Delivering goals and preparing students.
2. Phase 2 (**Demonstration and / or Presentation**). Demonstrate or explain knowledge and skills.
3. Phase 3 (**Structured Exercise**). Guiding training.
4. Phase 4 (**Guided Exercise**). Check understanding and provide feedback.

5. Phase 5 (**Independent Exercise**). Provide opportunities for advanced training and application.
6. Assessment and evaluation.
7. Closing

#### Observation of Cycle III

Observations use observation sheets and are carried out throughout the learning process. The results are as follows:

**Table 6. Cycle Observation Results 3**

Culture	No	Observation Aspects	Skor
<b>Culture of Discipline</b>	1.	Come To Class	3,53
	2.	Exit class to take a break	3,33
	3.	Enter class after break	3,27
	4.	Use of Practice Time	3,47
	5.	Seriousness doing Work	3,40
	6.	Working Time	3,47
	7.	SOP Implementation	3,73
	8.	Sanctions for those who Break the Rules	4,00
<b>Average</b>			<b>3,53</b>
<b>Innovative Culture</b>	1.	Continual Improvement of Processes and Ways of Working	3,27
	2.	The ability to Develop New Ideas, Alternatives or Creations	3,33
	3.	Ability to Solve Problems	3,27
<b>Average</b>			<b>3,29</b>

#### Reflection Cycle III

The Bench Work Practice learning process that uses the Explicite Instruction model has been carried out in accordance with the plan and made improvements according to the recommendations for improvement in cycle 1 and cycle 2. However there are still events that always arise and become problems during this learning process, namely the level of delay from students who still appears with

an indication that there are still students who arrive late when entering practical classes. These problems become problems that often arise in both the implementation of cycle 1 and cycle 2 so that the recommendations for improvement taken are the application of sanctions in the form of a reduction of 5 points for delaying class entry at each meeting.

**Cycle IV**

**Cycle Planning IV**

Observation of cycle 3 states that there are several problems in the learning process. The planning cycle 4 as follows:

1. Make plans to improve learning Explicit Instruction.
2. Arrange cycle schedules.

3. Creating learning scenarios that contain learning objectives, class organizing and teaching steps.
4. Choose practical assignments to be used in learning
5. Creating a Bench Work Practice jobsheet.
6. Give direction to the observer in observing the teaching and learning process in the Explicit Instruction learning model.

**Table 7. Cycle Schedule 4**

Cycle	Action	Date	Activity
Cycle 4	1	April 15, 2019	Implement Explicit Instruction learning and its corrective steps
	2	April 22, 2019	

**Implementation of Cycle IV**

1. Phase 1 (**Orientation**). Delivering goals and preparing students.
2. Phase 2 (**Demonstration and / or Presentation**). Demonstrate or explain knowledge and skills.
3. Phase 3 (**Structured Exercise**). Guiding training.
4. Phase 4 (**Guided Exercise**). Check understanding and provide feedback.

5. Phase 5 (**Independent Exercise**). Provide opportunities for advanced training and application.
6. Assessment and evaluation.
7. Closing

**Observation of Cycle IV**

Observations use observation sheets and are carried out throughout the learning process. The results are as follows.

**Table 8. Cycle Observation Results 4.**

Culture	No	Observation Aspects	Skor
<b>Culture of Discipline</b>	1.	Come To Class	3,80
	2.	Exit class to take a break	3,67
	3.	Enter class after break	3,27
	4.	Use of Practice Time	3,53
	5.	Seriousness doing Work	3,73
	6.	Working Time	3,47
	7.	SOP Implementation	3,87
	8.	Sanctions for those who Break the Rules	4,00
<b>Average</b>			<b>3,67</b>
<b>Innovative Culture</b>	1.	Continual Improvement of Processes and Ways of Working	3,40
	2.	The ability to Develop New Ideas, Alternatives or Creations	3,40
	3.	Ability to Solve Problems	3,47
<b>Average</b>			<b>3,42</b>

### Reflection Cycle IV

Bench Work Practice learning process that uses the *Explicite Instruction* model has been carried out in accordance with the plan and made improvements according to the recommendations for improvement in cycle 1, cycle 2 and cycle 3. During the learning process in this cycle the level of delay from students greatly decreased even there were no students being late. This happens because of growing awareness that tardiness will

hurt yourself. Of course, this awareness is inseparable from the implementation of the recommendations for improvement, namely the application of sanctions in the form of a reduction of 5 points if late for class entry at each meeting and late entry after class. Likewise, recommendations for improvement since cycles 1 and 2 which have been carried out are quite effective in improving the learning process with the *Explicite Instruction* learning model in this Bench Practice Course.

### Discussion

**Table 9. Summary of observations from cycle 1 to 4**

Culture	No	Observation Aspects	Skor Siklus				Rerata skor
			1	2	3	4	
Culture of Discipline	1.	Come To Class	2,93	3,13	3,53	3,80	3,35
	2.	Exit class to take a break	2,93	2,93	3,33	3,67	3,22
	3.	Enter class after break	2,87	3,33	3,27	3,27	3,19
	4.	Use of Practice Time	3,13	2,67	3,47	3,53	3,20
	5.	Seriousness doing Work	2,67	2,53	3,40	3,73	3,08
	6.	Working Time	2,73	3,00	3,47	3,47	3,17
	7.	SOP Implementation	2,53	3,27	3,73	3,87	3,35
	8.	Sanctions for those who Break the Rules	3,00	3,00	4,00	4,00	3,50
<b>Average</b>			<b>2,85</b>	<b>2,98</b>	<b>3,53</b>	<b>3,67</b>	<b>3,26</b>
Innovative Culture	1.	Continual Improvement of Processes and Ways of Working	2,67	3,27	3,27	3,40	3,15
	2.	The ability to Develop New Ideas, Alternatives or Creations	2,67	2,60	3,33	3,40	3,00
	3.	Ability to Solve Problems	2,80	2,67	3,27	3,47	3,05
<b>Average</b>			<b>2,71</b>	<b>2,84</b>	<b>3,29</b>	<b>3,42</b>	<b>3,07</b>

Based on data from summary table observations from cycle 1 to.d. 4 above, it can be analyzed that:

1. The culture of student discipline when coming into class has increased, this is because students are given appropriate treatments, and also given rewards and punishments that make students start to improve discipline in class on time.

2. Culture of student discipline during break time also increases although not significantly, this is because in cycles 1 and 2 are still stagnant in the initial conditions with students who are still too early for recess so that given treatment will be given the determination of the rest time given to students when mid time practice.



3. The culture of student discipline at the time of entering post-break class experiences a change that is not yet significant, cycle 2 to cycle 3 and 4 has decreased, but technically the handling has been carried out. This is because there are still students who are at rest even busy chatting so that the break time that should be maximized is even delayed. However, each cycle has been given treatment with reward and punishment and assistance so that the number of delays decreases.
4. The culture of student discipline when using practice time for each cycle has increased. Except for cycle 1 to 2 which has decreased because it is still in the beginning of lectures that students are in adjusting conditions. Directly given treatment and assistance, so students are able to maximize the practice time carried out in the next cycles.
5. The culture of student discipline about the seriousness of doing work has significantly increased each cycle by providing motivation and mentoring.
6. The culture of student discipline will increase their work time when practice, because the key is demonstration, motivation and independent assistance that makes students focus on the practice.
7. The culture of student discipline in implementing SOPs when practice increases. Assistance during each meeting and end discussing SOP and K3 issues, makes students accustomed to doing work in accordance with SOP and K3.
8. The culture of student discipline of sanctions for those who break the rules has increased, this is because there is reward and punishment for students. So students are more careful in working, but still optimally in carrying out their practice.
9. Students' innovative culture of continuous improvement in processes and ways of working has increased significantly. This is because the process of mentoring independently makes students always aware of the process of good practice, and where lies the error so that it can be immediately corrected by students.
10. Students' innovative culture of the ability to develop new ideas, alternatives or creations has increased. Cycle 1 to 2 has decreased because they are still working on basic jobs, while for the next meeting the development of jobs, the students are invited to discuss in advance about the material to be practiced, and given time to give opinions. So that when mentoring by the lecturer a positive interaction occurs with new ideas that can be developed during practice.
11. Students' innovative culture of the ability to solve problems they face has experienced a significant increase in cycles 3 and 4. This is because in cycles 1 and 2 students have not encountered significant problems when working on basic jobs, but mentoring independently by lecturers is still carried out as control of student performance, and the results can be seen in cycles 3 and 4 which have increased in solving the problems they face during practicum.

The explanation above, regarding the data table and its explanation, it can be concluded that in general the work culture of the D-III TM UNY students industry has increased. This happens because the implementation of the Explicit Instruction learning model in which the lecturer exercises strict control over student progress, time utilization and classroom climate which is also tightly controlled. Explicit Instruction helps students learn skills directly and step by step with intensive lecturer mentoring [9].

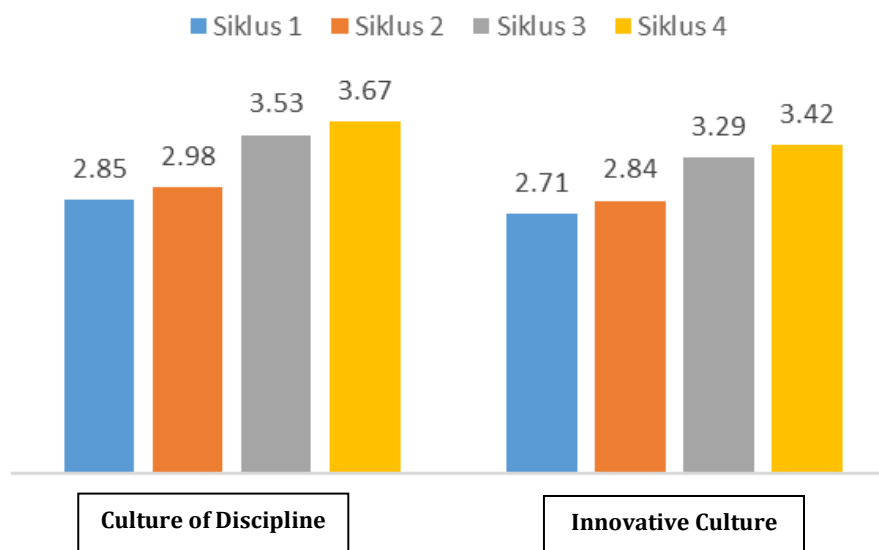


Figure 2. Average Disciplinary Score and Innovative Culture in each Cycle

The observational data in cycle 1 showed that the average score of discipline and innovative culture scores of students were 2.85 (enough) and 2.71 (enough) respectively. Cycle 2 was then carried out with some improvements which were recommendations from Cycle 1 and obtained a culture score of disciplinary culture scores and innovative culture scores of students respectively of 2.98 (enough) and 2.84 (enough). In cycle 1 to cycle 2 there was an increase, but a little and did not reach the desired target of > 3.00. Reflections and improvements were made in cycle 3. The results of observations showed that the score of discipline and innovative culture scores of students increased respectively to 3.53 (high) and 3.29 (high). This increase can be said to be quite significant and has exceeded the target or criteria for the success of the action. However, the cycle continues in cycle 4 to maximize actions and results. Observations in cycle 4 show that discipline culture scores and innovative culture scores of students increased respectively to 3.67 (high) and 3.42 (high).

### Conclusions

Based on the results of the study, the implementation of the Explicite Instruction in the Work Course of the Departmen D-III TM UNY went well as expected and can be said to be successful because it can achieve the targets set as success criteria. The optimal implementation of Instruction requires 3 to 4 cycles. Explicite Instruction is effective in improving the discipline and innovative culture of UNY D-III TM students.

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