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Implementation of Teaching Factory Learning Model in English Teaching Process in View of Students Perception and Learning Strategies

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Abstract - Many vocational schools have been bringing their educational practice closer to industry along with the concept of Teaching Factory (TEFA) to adjust the students' skills as close as the industry demands. The implementation of TEFA based curriculum in one of vocational higher education in Surabaya for all subjects including English subject has been performed since 2019. In English classes, the Teaching Factory-Based Strategy covers two methods: product-based learning and flipped classroom. This research aims to explore the implementation of TEFA-based strategy and the two methods by revealing students' perceptions and responses on the strategy. This research is descriptive qualitative research in which data were obtained through questionnaires and interviews. The students observed were from 4 different study programs in this PPNS. The results of this study show positive perceptions of students toward TEFA – based strategy implemented in the classroom even though there are some obstacles faced by both students and lecturers. Hopefully this research can contribute practically to English teachers who are adopting TEFA in English language teaching.

Keywords: teaching factory, product-based learning, vocational higher education

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1. INTRODUCTION

Huge efforts have been made by Indonesian government along this time underlying one mission: improving the quality of education. However, from the results of a study by the Central Statistics Agency (BPS) in 2017/2018, the unemployment rate of Vocational School is still the highest when compared with other education (Ministry of Education and Culture, 2019). To overcome this problem, the government through the Ministry of Education, has been trying to synchronize the competency of students, especially for vocational education, with the industry needs. Directorate of Vocational School Development undertake some strategic steps since 2016, including teaching factory (TEFA) (Direktorat Jenderal Pendidikan Vokasi, 2020). TEFA learning model is a

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production/service-based learning model in vocational schools which refers to standards and procedures applicable in the industry and is implemented in an industrial-like atmosphere (Ministry of Education and Culture, 2019).

Implementing a teaching factory is believed as a promising method for bridging the competency gap between the transfer of knowledge in the classroom and real-world settings. According to the Press conference by The Ministry of Education, Culture, Research and Technology (2022) in 2021, the number of Vocational High Schools (SMK) implementing the teaching factory learning model has increased by seven percent to 52 percent compared to 2020. This data is based on the results of a survey on strengthening vocational education conducted by the Indonesian Political Indicators survey institute at the end of 2021. Higher educational institutions or Polytechnics have also tried to bring their educational practice closer to industry along with the concept of a Learning Factory and Teaching Factory. The "factory-to-classroom" mode of such approach aims at transferring the real industry environment to the classroom (Mavrikios et all, 2018). The implementation of Teaching Factory has also changed the way English is taught in Polytechnics. The English language teaching in Polytechnics has been focusing on the English products made by students.

Politeknik Perkapalan Negeri Surabaya (PPNS) has implemented Teaching Factory since 2019 but it then faced some challenges during the Covid-19 pandemic. Fortunately, PPNS has developed the Learning Management System (LMS) at the same time when English lecturers have long applied the idea of online and mobile learning even before the pandemic came. Inspired by top global institutions which follow hybrid educational models which is a mix of online and in-person learning (Mourtzis, 2021), PPNS developed the Teaching Factory-based strategy to teach English for Specific Purposes (ESP) for Engineering students which combined online learning and product-based learning. In order to support the Teaching Factory curriculum being implemented during the social distancing, the English lecturers in PPNS Since 2021, the strategy has become a combination of Flipped classroom method and product-based learning on its application.

The Flipped Classroom method has been carried out by English Lecturers to build self-paced learning environment for students in which they can learn according to their learning ability by using technology, the LMS, as a tool. The English subject is taught every two semesters by dividing it into 2 sections: The Theory class and Practice Class. The Practice Class is called "learning in the classroom" emphasizes active learning activities and the opportunity for collaboration among students is high. This is where students finish the project given by the lecturers and make the English products.

Like many other strategies, drawbacks and challenges happened during the implementation of Teaching Factory-based strategy. Research by Indrastana (2023) target students' perception on

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the implementation of Teaching Factory method in English teaching in Polytechnic, presenting a satisfying result. However, the research has not revealed the effect of teaching factory model on students' English competence. Therefore, PPNS English lecturers need to evaluate the implementation of the strategy by initially reveal its conformity to students' learning strategy. Next, students' perception towards the strategy is also essential to be explored which may indicate students' motivation in learning English and improvement of their English competence.

2. METHOD

The underlying method of this research is descriptive qualitative method. Descriptive research is aimed to describe a phenomenon along with its characteristics. Qualitative research is considered holistic and involves a lot of data collection from various sources to obtain a deeper understanding of the research participants, including their perceptions, opinions, and attitudes (Nassaji, 2015). Therefore, the design of this research adopts the descriptive qualitative design. This research tries to explore and describe students learning strategy, their perception on Teaching Factory-based strategy and students' English competence after the implementation of the strategy, qualitatively.

The trustworthiness of the data used is tested by triangulation technique. Testing data trustworthiness is necessary in qualitative research for the sake of validity and reliability as well as the level of confidence of the data (Sugiyono, 2017). The triangulation technique is a researcher's effort by comparing some data taken from the observation, interview, and questionnaire, documents, and then combined for a clear understanding of the results (Yuliani, 2018).

In this research, multiple data sources are taken by using some data collection instruments, namely interviews, observations, and questionnaires. There are two types of questionnaires. The first consists of 50 questions indicating students' learning strategy. The second questionnaire consists of 17 close-ended questions which target students' perception on the implementation of Teaching Factory-based strategy in English class. All the questionnaires use Likert scale and are collected through google form. They were given to 120 students and 4 English lecturers in PPNS. Meanwhile, the interview was done face to face by involving 12 students and 4 English lecturers. The data collected were then analyzed descriptively to clearly define PPNS students' preference on learning strategy, their perception on the use of TEFA-based strategy, and their English competence after the implementation of the strategy.

The participants of this research are 8th semester students of 4 study programs in PPNS: Safety Engineering, Design and Manufacture Engineering, Design and Construction

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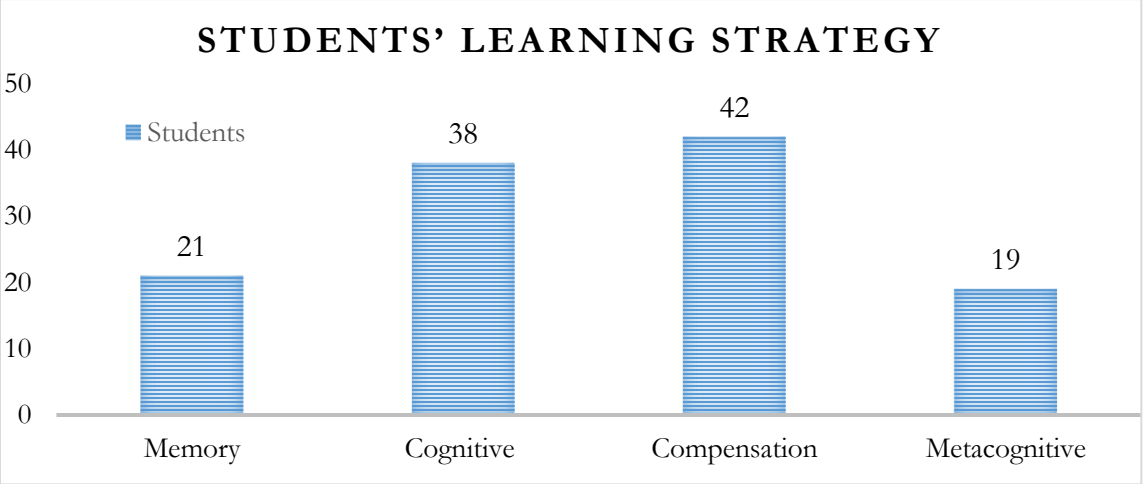
Engineering, and Automation Engineering. All the students got English 1, 2, and 3. 120 students were the respondents and 12 of them were interviewed face to face.

3. RESULTS AND DISCUSSION

The results of this study were divided into students' learning strategy and students' perception in learning English by combining Flipped learning using Learning Media System that can be access both in online or offline system.

1. Students' Learning Strategy

To identify the learning strategy preferred by Engineering students in PPNS, the first questionnaire consisting of 50 questions was distributed. The result shows that students are more into the compensation and cognitive learning strategy.



To recognize the students' learning strategy there are some questions adopted from the Strategy Inventory for Language Learning (SILL) which tell the kinds of strategies used in learning English. From diagram 1, it can be seen that most PPNS students are interested in compensation learning strategy. This learning strategy shows the limitation of students' knowledge while they understand new English words or vocabulary. As a result, the students are wonder to learn English through watching videos, playing games, quizzes, and guessing missing words toward this learning strategy. However, the second learning strategy most chosen by the students is cognitive. It shows that the students are attracted to explore their way of thinking such as problem-solving, case study, and product-based learning. It can be implemented in several topics and tasks; for instance, asking the students to describe object specifications, describing places, explaining rules and regulations in the workshop, and explaining processes and procedures. These topics and tasks require the students to focus directly on the specific term in producing new words without memorization.

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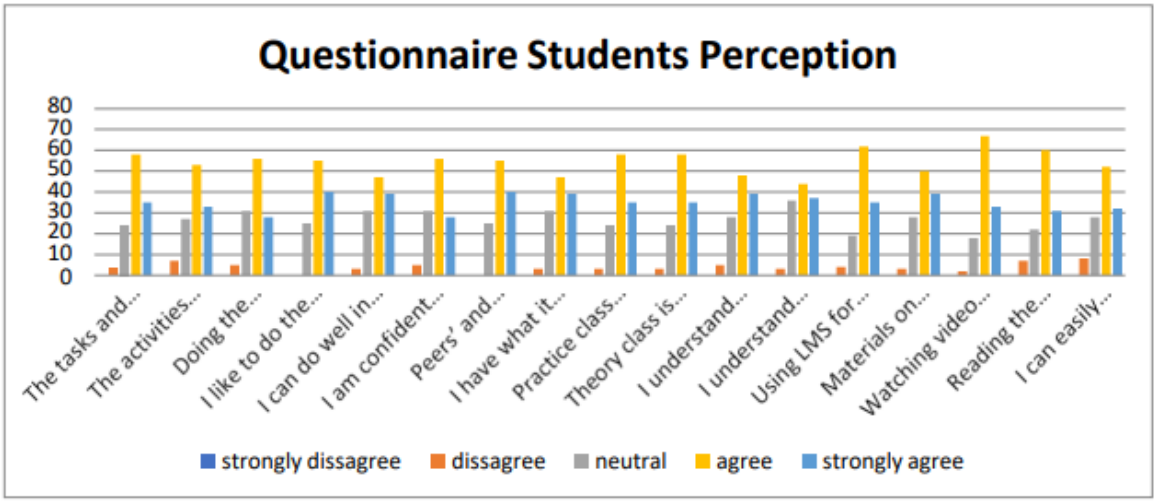
Therefore, most students choose these two learning strategies to be in line with the TEFA curriculum in PPNS which focuses on product-based learning.

2. Students' Perception

The questionnaire of students' perception consists of 17 close-ended questions. The questions reveal students' opinion on the Product-Based Learning which involves English projects like video and magazine articles. The questions also seeked to explain students' understanding of English materials given on theory and practice class, altogether with their opinion on how effective the flipped classroom (theory and practice class) is.

No	Questions	strongly disagree	disagree	neutral	agree	strongly agree	Total
1	The tasks and assignments I do for English Class is valuable to me	0	3	24	58	35	120
2	The activities during the English Class improve my understandings on the key concept/materials	0	7	27	53	33	120
3	Doing the English Projects (video, posters, and magazine articles) improve my English skills	0	5	31	56	28	120
4	I like to do the English Projects (video, posters, and magazine articles)	0	0	25	55	40	120
5	I can do well in my English theory and practice class	0	3	31	47	39	120
6	I am confident about my ability on the English final exam.	0	5	31	56	28	120
7	Peers' and lecturer's feedback help me to improve my English skills	0	0	25	55	40	120
8	I have what it takes to do well in English Practice class.	0	3	31	47	39	120
9	Practice class improve my English communicative skills	0	3	24	58	35	120
10	Theory class is significant for accomplishing the English projects	0	3	24	58	35	120
11	I understand why I should do English projects (video, posters, and article projects)	0	5	28	48	39	120

12	I understand how to make the English projects (video, posters, and article projects)	0	3	36	44	37	120
13	Using LMS for theory class is easy	0	4	19	62	35	120
14	Materials on LMS is meaningful	0	3	28	50	39	120
15	Watching video lectures and read the materials before class prepare me for the practice class activity	0	2	18	67	33	120
16	Reading the materials before class helps me do the tasks and assignments	0	7	22	60	31	120
17	I can easily understand the materials given through LMS	0	8	28	52	32	120



From the questionnaire of students' perception, it can be seen that most of students were familiar with the learning system of English learning using technology. It can be seen from the responses of the questionnaires that most of the students were familiar and enthusiast in utilizing technology in their language learning. Making a product from their learning process was become obligatory and was considered as demand in learning English.

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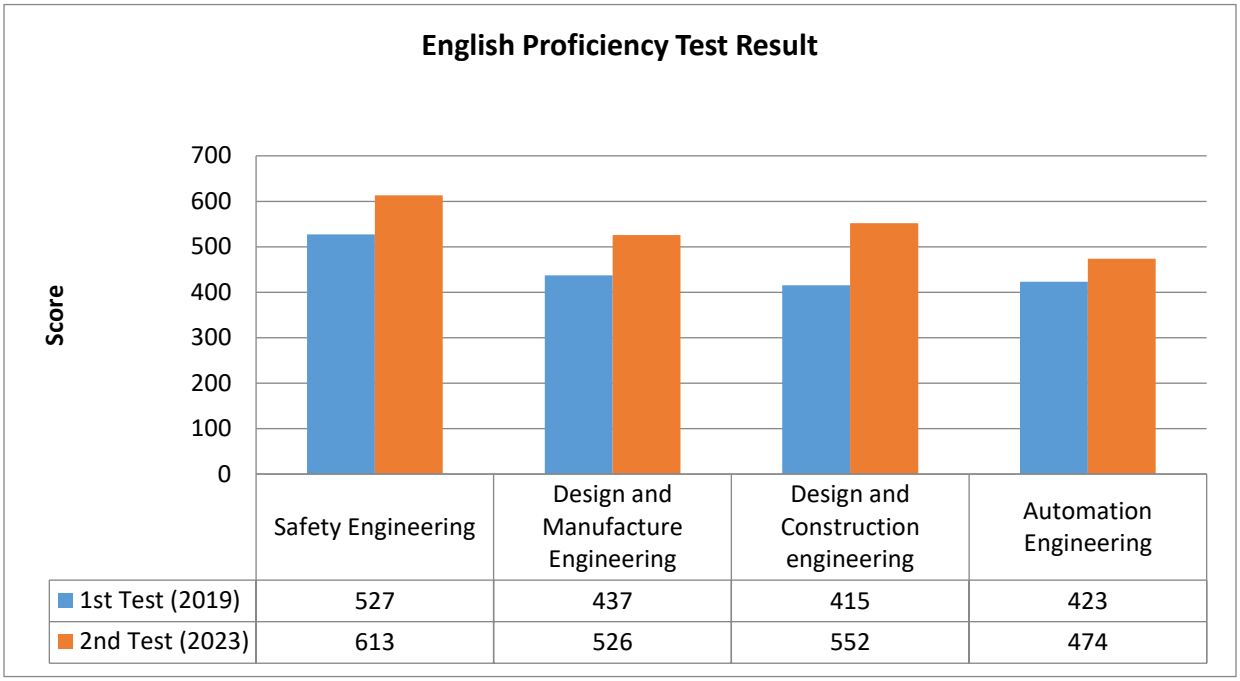
3. Students' English Competence



	Safety Engineering	Design and Manufacture Engineering	Design and Construction engineering	Automation Engineering
1st Test (2019)	527	437	415	423
2nd Test (2023)	613	526	552	474

It can be seen from the table 3 that when comparing the results of the pre-test conducted in the first semester to the results of the post-test conducted in the last semester indicates a significant difference in the total score obtained by all students in the two study programs. The results of the Post-test have significant increasing compare with the results of the pre-test in the four study programs. Thus, it can be concluded that after understanding the students' perception and implementing the product-based learning method in teaching English the students' improvement can be seen clearly.

4. CONLUSION

When it comes to service product TEFA learning, the focus is on competency standards that match industry performance requirements. Students who participate in TEFA learning benefit from increased mental readiness for the workforce and increased competitiveness in the job market. Reviewing the result of this research, there are some suggestions for the implementation of the flipped classroom model in the future. First, the English lecturers must be ready with some preventive actions. Before implementing the flipped classroom model, the lecturers must ensure that all of the students understand the concept of the flipped classroom model and its procedures. Second, the lecturers must also get enough support from the institution in the implementation of

the program. Finally, the lecturers should do reflection, evaluation, and also revision, during and after the process of implementation.

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