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The Influence of Professional Job Lectures on The Knowledge Level of Students About Oil Palm Plantation Management

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Abstract

In vocational education, field practice is not only considered as a complement, but also as the core of learning that can produce graduates who are ready to contribute directly to the world of work. Professional Job Lecture (PJL) is a mandatory courses in the sixth semester. All learning is carried out practically. This research aims to examine the level of knowledge of students who are participants in the PJL. The research was conducted on 15 August until 31 October 2023 at the Citra Widya Edukasi Oil Palm Polytechnic on all students of the Production Technology of Plantation Crops study program for the year entering 2021. The number of students in the survey was 37 people. The student has participated in PJL activities at the Subang oil palm educational plantation of the Citra Widya Edukasi Oil Palm Polytechnic for 20 days. Primary data was used in this research through filling out questionnaires. Level of confidence and knowledge of students measured by submitting statements and questions in online questionnaire. Questionnaire-filling was carried out on the first day of the PJL and 2 months after the activity was completed. The level of knowledge of students PJL about oil palm plantation management was medium to very high level based on hypothetical data categorization. The majority of students have a high level of knowledge as much as 62.86%. Effective communication based on SKKN topic for Plantation Asisstants was the highest percentage of corecct answers namely 89.86. Self-confidence was increased after PJL with the number of students by 31 people.

Keywords: *Kuliah Kerja Profesi, Student Knowledge, Oil Palm Human Resources, Vocational Higher Education, Plantation Assistant*

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INTRODUCTION

College is crucial role in shaping competent candidates for the workforce who are ready to enter the industry. It can be achieved through vocational education. Vocational education has become a key pillar in shaping human resources ready to directly enter the workforce. With time,

college are expected not only to be institutions that provide theoretical knowledge but also to produce graduates with practical skills that meet industry demands. In this context, learning methods that incorporate field practices become an approach that is not only effective but also relevant in producing graduates ready to compete in the job market. In line with the development of this concept, learning methods that incorporate field practices become a strategy that is increasingly recognized and adopted by higher education institutions. In the context of vocational education, field practices are not only considered as complements but also as the core of learning that can produce graduates ready to contribute directly to the workforce.

Field-based learning methods emerge as one of the most effective strategies for embracing vocational education in higher education institutions. This method not only provides direct experiences to students but also enables them to face real challenges that they may encounter in the workforce. Through this method, students can develop interpersonal skills, problem-solving abilities, and adaptability that cannot be acquired through classroom learning alone. Various types of methods can be applied, such as internships, industry simulations, and field projects. A concrete example of the application of the field-based learning method is through student field practices in oil palm plantations. Field practices in oil palm plantations serve as a tangible example of implementing field-based learning methods. The workforce in oil palm plantations consists of three types, namely educated labor, skilled labor, and ordinary labor. Students not only learn about agriculture and agribusiness theoretically but also engage directly in daily activities in the plantations. This not only enhances their knowledge but also provides insights into the challenges and opportunities in the field. This can be achieved through one of the learning methods in college, namely Professional Job Lecture (PJL) which in Indonesian is called Kuliah Kerja Profesi (KKP) as implemented by the Production Technology of Plantation Crops Study Program at Citra Widya Edukasi Oil Palm Polytechnic.

Professional Job Lecture is a mandatory course for sixth-semester students in the Production Technology of Plantation Crops Study Program at Citra Widya Edukasi (CWE) Oil Palm Polytechnic. The course consists of 6 Credit Units, where all learning activities are conducted practically. The course takes place in oil palm plantations for a certain period during which students live and work in the plantations to truly experience the dynamics of life in oil palm plantations. The learning materials are conducted by following the SKKNI (Indonesian National Work Competency Standards) for Plantation Assistants (Wibowo, Sibarani, Handini, Putri, & Madusari, 2023). Information about the effectiveness of the learning method is needed to serve as a reference for corrections and improvements in the learning system. The necessary information includes confidence level, knowledge level, and the topics mastered by students before and after the learning process. This research aims to determine the knowledge level of students participating in the PJL program in 2023. However, This research useful for similar study programs in vocational colleges in Indonesia and worldwide that intend to implement the work practice lecture in oil palm plantations, either in educational institutions or oil palm companies.

METHODS

The research was conducted on 15 August until 31 October 2023 at the Citra Widya Edukasi Oil Palm Polytechnic on all students of the Production Technology of Plantation Crops Study Program for the year entering 2021. The number of students who took part in the survey was 37 people. The student has participated in Professional Job Lecture (PJL) activities at the Subang oil palm educational plantation of the Citra Widya Edukasi Oil Palm Polytechnic for 20 days. PJL activities held on 12 August – 2 September 2023. Primary data was used in this research through filling out questionnaires. The level of student confidence and knowledge measured by conveying statements and questions to students participating in the PJL at online questionnaire. This questionnaire-filling was carried out on the first day of the PJL and 2 months after the activity was completed to provide knowledge retention time for students.

The statements and questions given relate to the 5 aspects of the SKKNI for Plantation Assistants. The statement submitted aims to provide opportunities for students to claim that they

have competence in the competency points in the SKKNI for Plantation Assistants. The statement conveyed also aims to get an idea of the student's level of confidence in their skills. These 5 aspects are implementing HSE (health, safety, and environment), organizing work, effective communication, managing the maintenance of productive plants, and managing the harvest. The number of statements and questions each amounts to 35 questions. The data analyzed descriptively quantitatively by calculating the average (mean), middle value (median), frequently occurring values (mode), and standard deviation (St Dev). Data on the level of knowledge of PJL participating students presented in the form of tables and figures. Students' knowledge levels are categorized into five categories, namely very low, low, medium, high, and very high. Intervals in data categories are determined based on hypothetical and empirical categorization according to Azwar, (1993) (Table 1). The data compared between survey data before PJL activities and survey data after PJL. This was done to determine the impact of PJL activities on changes in students' levels of self-confidence and knowledge.

Table 1. Norm Category For Knowledge Level

Interval	Category
Mean + (1,5 × St Dev) < X	Very High
Mean + (0,5 × St Dev) < X ≤ Mean + (1,5 × St Dev)	High
Mean - (0,5 × St Dev) < X ≤ Mean + (0,5 × St Dev)	Medium
Mean - (1,5 × St Dev) < X ≤ Mean - (0,5 × St Dev)	Low
X < Mean - (1,5 × St Dev)	Very Low

FINDING AND DISCUSSIONS

Land Conditions and Kinds of Activities

PJL activities were carried out at the Subang oil palm educational plantation belonging to the Citra Widya Edukasi Oil Palm Polytechnic. The land used for the PJL has an area of 3.5 ha with predominantly hilly topography. The land is divided into 4 parts, namely residential land (emplacement), roads, fields, and oil palm stands. The condition of the plantation at the start of the PJL was in the form of oil palm fronds that were not neatly arranged, wide and narrow leaf weeds, a pickle market that was overgrown with weeds, damaged produce collection points, and individual terraces. The physical condition of the plants that were observed visually showed the characteristics of plants experiencing etiolation and nutrient deficiencies in the form of pale green leaves, old leaves showing symptoms of magnesium deficiency, hanging midribs, and little fruit production. Apart from that, the plants had not been pruned for 1 year.

Fig. 1 - The topography and condition of the garden are unkempt, where many weeds grow thickly and the fronds are not neatly arranged. (A) Part of the garden with hilly topography and (B) Part of the garden with plain topography.

The main activities carried out during the PJL include field orientation activities, making location maps, and routine oil palm plantation maintenance work. Field orientation activities are carried out on the first day after arrival (second day in the garden). This activity was carried out by starting with observing the general condition of the garden, visual documentation of the condition of the garden, determining the boundaries of the group's work area (division), and introducing the boundaries of the garden and the surrounding environment. Group work areas are divided taking into account the condition of the garden and its topography so that each group gets the same workload. The location map was made on the second day after arrival. This activity is carried out by determining the coordinate points of the garden boundaries and work areas using the Garmin GPS MAPS 65S tool. Next, the coordinate points that have been obtained are processed using the Q-GIS application to obtain a map of the garden and group work area. After that, armed with a map of the work area the student group carried out routine work activities to maintain the oil palm plantation which started on the third day after arrival.

Figure 2. The role of assistant positions and morning assembly activities for staff and employees. (A and B) The role of assistant (wearing blue clothes) and the role of foreman (wearing gray clothes). (C) Morning assembly for staff followed by the roles of manager, head of assistant, assistant, and foreman. (D) Morning assembly for employees followed by the roles of head of assistant, assistant, foreman, and daily labourer.

Routine garden maintenance work activities are carried out in the form of daily activities which sequentially consist of staff morning assembly, employee morning assembly, garden work, job evaluation, and next day's work planning. Staff morning roll calls are held to find out the previous day's work evaluation and work plans for that day. The staff morning assembly is followed by the role of plantation manager (by the lecturer), assistant head (senior students), and students who take turns in the roles of foreman and plantation assistant. The employees' morning roll call is followed by the roles of foreman, assistant head, assistant, and the role of daily labourer (Fig 2). Garden maintenance activities carried out include trimming palm fronds, removing saplings, weed control, cleaning fertilization zone, cleaning produce collection areas, making and repairing oil palm individual terraces, cutting leaf fronds (pruning), fertilizing, harvesting, drone operation training, and night discussion and study (Fig 3). All these activities are planned and supervised by students who act as Plantation Assistants and Foreman positions, then carried out by students who act as laborer workers. The role of this position is played in turns by each student in one work group. Each student has a turn to hold the positions of foreman and assistant one day each, so in one day there are two students in charge of holding the position. The student on duty is obliged to carry out work calibration, prepare work targets and plans, prepare labor requirements, determine the need for materials and work tools, and make daily work reports. Apart from direct activities in the garden, students also take part in lectures and discussion forums held in the evening.

Fig 3 - Various activities during PJL. A) Packaging fertilizer for fertilization activities, B) Calibration of spraying techniques, C) Maintenance of work equipment, D) Spreading fertilizer under the canopy of oil palm trees, E) Cleaning and tidying up fronds, F) Drone operation training, G) Fruit harvesting and pruning, H) Construction of transportation and worker roads, I-J) Night discussion and study.

Student Knowledge and Confidence Level

Statistical analysis of pre-test data on the level of knowledge of students participating in the 2023 PJL Production Technology of Plantation Crops Study Program regarding oil palm plantation management shows that the lowest (minimum) score is 15, the highest (maximum) score is 29, the average (mean) is 22.24, the value the middle (median) 22, the frequently occurring value (mode) 22, and the standard deviation (St Dev) 3.06 (Table 2). These results are then compared with statistical analysis of the post-test results where the lowest (minimum) score is 16, the highest (maximum) score is 30, the average (mean) is 23, the middle value (median) is 23, the frequently occurring value (mode) is 24, and standard deviation (St Dev) 3.18 (Table 2). Based on this data, it can be seen that there is an influence of PJL activities on increasing student knowledge if viewed from the addition of values to the variables tested, where there is an increase in values for the lowest score, highest score, scores that appear frequently, and average scores. If we look at the post-test result data, especially the highest score, the score that appears frequently, and the average score, the value obtained in this study is also greater than the value obtained in the test carried out by Wibowo et al., (2023). This can be compared because this study uses the same questionnaire form.

Table 2. Statistical analysis of the knowledge level of students participating in the 2023 PJL the Production Technology of Plantation Crops Study Program regarding oil palm plantation management.

Variable	**Empiric**		**Hypothetic**
	Pre Test	***Post Test***	
Mean	22.24	23	18
Median	22	23	18
Minimum	15	16	0
Maximum	29	30	35
Modus	22	24	-
Standard Deviasi (St Dev)	3.06	3,18	5,83
Jumlah Data (N)	37	37	-

Increasing student knowledge can also be seen through increasing the number of correct answers to questions. This is known by comparing the pre-test scores with the post-test for each student. The number of students who experienced an increase in knowledge was 24 people or the equivalent of 68.57% of students. However, if we look at the number of correct answers in at least 70% of the questions, there were only 3 students who experienced an increase in their knowledge (Table 3). Increasing student knowledge occurs due to learning activities in the form of field activities accompanied by trainers or field assistants. Apart from field activities, students also gain knowledge enrichment through educational activities in the form of lectures and discussions held in the evening. This activity aims to strengthen students' understanding. The above is also with what was reported by Ismail, Hasan, & Musdalifah, (2018) and Citerawati, Batubara, & Nusni, (2023), where practical internships and educational activities can increase student knowledge. Engaging in practical internships and educational activities can substantially enrich a student's knowledge and equip them with the necessary skills to navigate the professional landscape successfully. These experiences provide students with a hands-on understanding of the real-world environment, allowing them to translate theoretical concepts into practical applications (Polmear, Simmons, & Clegorne, 2020; Kotche, Felder, Wilkens, & Stirling, 2020)

Students' level of confidence can be determined by filling out a competency claim questionnaire. Students are directed to choose options with the value of agreeing and not agreeing with the statement presented. Based on the measurement results, it was discovered that as many as 31 students (86.11%) had increased their level of confidence. This is known by comparing the number of statements that have the value of agreeing on the pre-test and post-test. These students

are increasingly confident of being able to master a type of skill after participating in PJL activities.

Table 3. Increased self-confidence, scores, and the number of students answering correctly at least 70% of the questions.

Parameter	Amount (person)	Percentage (%)
Increased confidence	31	86,11
Improved score	24	68.57
The number of students who answered correctly at least 70% of the questions - *Pre-Test*	8	22.86
The number of students who answered correctly at least 70% of the questions - *Post Test*	11	31.43

The level of knowledge can be grouped into several categories which are determined based on statistical analysis of average and standard deviation data. So it is known that the level of knowledge of participants in the 2023 PJL Production Technology of Plantation Crops Study Program regarding oil palm plantation management is in the medium to very high category, with the majority of their knowledge level being high. This is based on references prepared using hypothetical research values. The number of students with a medium level of knowledge was 11 people or 31.43%, a high level of knowledge was 22 people or 62.86%, and a very high level was 4 people or 11.43% (Table 4). Based on this categorization, it can be seen that the majority of students have a high level of knowledge after PJL activities. Test results are also categorized based on empirical data or score data that has been obtained. Based on the categorization of empirical data, the majority of students' knowledge level is in the medium category. The number of students in the medium category was 20 people or 57.14%.

Studies are also carried out on evaluation topics so that we can find out which topics are most mastered by students. The topic of effective communication and the topic of implementing HSE are the testing topics that are most mastered by students participating in the PJL 2023. The measurement results show that the questions on the topic of evaluating effective communication have the highest number of correct answers, namely 86.11% in the pre-test results. then it increased in the post-test results, namely 89.86%. The topic of implementing HSE is a topic with the second highest percentage of correct answers, namely 72.97% in the pre-test results which then increased to 74.32% in the post-test results (Table 5). These results are also following the measurements carried out by Wibowo et al., (2023) where the topic of effective communication and the topic of implementing HSE are the two topics that are also most mastered by students participating in the PJL in 2022. Effective communication is the ability to convey messages precisely and clearly and understand messages from other parties correctly without significant obstacles in the process of transfer of information (Aulina, 2019).

Table 4. Categorization of evaluation scores of students participating in the 2023 Professional Job Lecture the Production Technology of Plantation Crops Study Program regarding oil palm plantation management.

Category	Hypothetical			Empirical		
	Score Interval	Amount (people)	Percentage (%)	Score Interval	Amount (people)	Percentage (%)
Very High	$27 < X$	4	11,43	$28 < X$	2	5,71
High	$21 < X \leq 27$	22	62,86	$25 < X \leq 28$	4	11,43
Medium	$15 < X \leq 21$	11	31,43	$21 < X \leq 25$	20	57,14
Low	$9 < X \leq 15$	0	0	$18 < X \leq 21$	8	22,86
Very Low	$X \leq 9$	0	0	$X \leq 18$	3	8,57

The position of plantation assistant played by students is a middle-level position in the management organization of an oil palm plantation company, so it requires good communication skills. This is because according to Nurrohim & Anatan, (2009) plantation assistants have two-way responsibilities, namely having responsibilities to superiors and having to establish good relationships with lower management to obtain information and communicate it to superiors. The people who are subordinate to assistants include Foreman 1, Foreman, employees, and casual daily workers (THL). According to Wibowo et al., (2023) Effective communication skills are very necessary in managing plantations, especially large-scale plantations. This is because its management requires a complex and multi-level organization, which allows for many obstacles in the information transfer process.

Table 5. Percentage of correct answers and number of students who were able to solve 70% of the questions correctly on each evaluation topic.

Evaluation Topics	Average Number of Students with Correct Answers (%)	Number of Students Who Can Complete 70% of the Questions Correctly (People)
	Pre Test	
Applying HSE	72,97	6
Organizing work	49,73	2
Communicate effectively	86,49	3
Managing crop maintenance	61,94	8
Managing the harvest	50,45	1
	Post Test	
Applying HSE	74,32	6
Organizing work	51,35	2
Communicate effectively	89,86	4
Managing crop maintenance	65,77	6
Managing the harvest	50	1

Multi-level organizations require an effective communication strategy so that information originating from top-level positions can be well received down to the lowest level. All students participating in the PJL 2023 must carry out supervision duties which are carried out in turns. The supervisory duties carried out are the roles of foreman and assistant. The role of foremen and assistants in oil palm plantation company organizations occupy middle-level management positions. Loyalty to superiors is carried out to work and achieve success in making decisions, plans, and policies. Meanwhile, establishing good relationships with subordinates is done by creating a climate of trust and openness. Effective communication can improve employee performance in a plantation company and build positive relationships between independent oil palm smallholders (Riadi, 2018; Ramana, Yulida, & Kurnia, 2021; Haidar, Muttaqien, & Dewi, 2022).

Well-prepared tables and or figures must be of significant feature of this section, because they convey the major observations to readers. Any information provided in tables and figures should no longer be repeated in the text, but the text should focus on the importance of the principal findings of the study. In general, journal papers will contain three to seven figures and tables. Same data can not be presented in the form of tables and figures. The results of the study are discussed to address the problem formulated, objectives, and research hypotheses. It is highly suggested that discussion be focused on why and how the research findings can happen and to extent to which the research findings can be applied to other relevant problems.

CONCLUSION

The level of knowledge of students participating in the PJL 2023 Production Technology of Plantation Crops Study Program regarding oil palm plantation management is at a medium to very high level based on hypothetical data categorization. The majority of students have a high level of knowledge with a percentage of 62.86%. The SKKNI topic for Plantation Assistants with the highest percentage of correct answers is carrying out effective communication, namely 89.86% in the final survey. PJL activities can increase students' self-confidence in the skills being tested, with the number of students increasing by 31 people.

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