

# MANAGING THE PRACTICE ACTIVITIES OF ENGINEERING STUDENTS AT VINH LONG UNIVERSITY OF TECHNOLOGY EDUCATION

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**Abstract** -The management of students' practice activities at Vinh Long University of Technology Education is considered an indispensable requirement in the process of vocational training for students, especially engineering students. The current situation of managing students' practice learning activities still remains certain inadequacies, such as the lack of modern equipment and machines, unenthusiastic practice teachers and instructors, and students' lack of creativity and willingness to widen their knowledge to well perform their practice at production enterprises. Therefore, the University needs appropriate solutions such as innovating the management of practice activities on the campus and at production enterprises as well as investing in and managing equipment and machinery in practice workshops in order to improve the quality of vocational training, contributing to the improvement in the quality of engineering human resource training for the country.

**Keywords:** Practice learning activities; Vocational training; Engineering students.

## INTRODUCTION

Vietnam's higher education is following the trend of international integration in the spirit of "rigorously shifting the educational process from mainly equipping knowledge to comprehensively developing learners' capacity and political qualities, in which learning is accompanied by practice and theory is associated with practice" [1; p.130]. Therefore, practice activities are considered the key part in training high-tech human resources. The issue of managing practice learning activities has also been studied by many authors. Particularly, the research David A. Kolb [4; p.53] conducted on practice learning activities by the experiential method shows the four stages of experiential learning operating in a continuous cycle and contributes to the orientation for educators in organizing practice learning activities for students or the authors X.La. Batussep - X.A. Saporinsky also mentioned the methods of vocational training activities, analyzing the stages of organizing vocational training activities based on the process of forming labor skills and the relationship between production practice activities and professional labor process [5; p.27]. Some other studies have analyzed the practice learning activities in the practice workshop in terms of difficulties and advantages [3; p.35] and have assessed the weaknesses in the management of vocational training activities, which include the training program failing to meet the training requirements, the limitations in the preparation for learning activities, and the lack of testing "standards" to evaluate students' practice results; thereby proposing some solutions to improve the quality of practice activities [2; p.46]

Today, in vocational training institutions, practice learning activities are considered the main activities to provide students with the preparation for professional skills and attitude, getting them ready for the the real working environment in the future. However, the management of practice learning activities of engineering students during the training process at Vinh Long University of Technology Education (SPKT) still remains some shortcomings and limitations. Therefore, the University needs to work out solutions to manage the practice activities to improve the quality of vocational training for engineering students, contributing to the improvement in the University's training quality.

## CONTENTS

### 1. THE CURRENT SITUATION OF MANAGING THE PRACTICE LEARNING ACTIVITIES OF ENGINEERING STUDENTS AT VINH LONG UNIVERSITY OF TECHNOLOGY EDUCATION.

In order to assess the current situation of managing the practice learning activities of engineering students at Vinh Long University of Technology Education, in March 2018, a field survey was conducted on the following subjects: 40 managing officers and instructors at production enterprises such as Phuc Gia Khang Mechanical Company, Binh Minh En Mechanical and Electrical Refrigeration Engineering Company, Nhat Anh Company, Toyota Ninh Kieu, Ford Can Tho; 16 managing officers at the University,

74 lecturers and 150 students majoring in Electrical & Electronic Engineering Technology, Mechanical Engineering Technology and Automotive Engineering Technology. The study focuses on the management of engineering students' practice learning activities, both on the campus and in enterprises. The survey shows the current situation of managing the practice learning activities of engineering students at Vinh Long University of Technology Education as follows:

### 1.1. MANAGING THE PRACTICE LEARNING ACTIVITIES OF ENGINEERING STUDENTS AT VINH LONG UNIVERSITY OF TECHNOLOGY EDUCATION

Practice activities on the campus will help students follow the principle of "learning accompanied by practice, theory associated with practice" and apply the acquired knowledge into practice. Students will learn and practice directly on real machines and equipment, creating conditions for students to promptly approach the requirements of production activities. The survey results are as follows:

**Table 1.** Results of surveying managing officers, lecturers and students on the performance of practice learning activities of engineering students at Vinh Long University of Technology Education

Content		Survey subject/Performance level							
		Managing officers, lecturers 90				Students 150			
		Good	Fair	Average	Weak	Good	Fair	Average	Weak
Students study seriously, concentrate on, pay attention to, and observe the lecturer's manipulations.	Number	28	49	8	5	48	78	14	10
	%	31.1	54.4	8.9	5.6	32.0	52.0	9.3	6.7
Students have enough learning materials, practice instruction sheets, and practice report sheets for each practice section.	Number	90	0	0	0	150	0	0	0
	%	100	0	0	0	100	0	0	0
Students receive the enthusiastic attention and instruction of lecturers.	Number	30	49	7	4	50	80	12	8
	%	33.3	54.4	7.8	4.5	33.4	53.3	8.0	5.3
Students have enough time to repeat the practice of a skill many times until they master it.	Number	74	16	0	0	120	30	0	0
	%	82.2	17.8	0	0	80.0	20.0	0	0
Students get extra practice overtime, especially weak students.	Number	34	47	6	3	49	81	11	9
	%	37.8	52.2	6.7	3.3	32.7	54.0	7.3	6.0
Modern equipment, machinery, tools and supplies are fully provided.	Number	20	52	10	8	44	82	14	10

	%	22.2	57.8	11.1	8.9	29.3	54.7	9.3	6.7
Students wear uniform and are fully equipped with labour protection equipment in accordance with the nature of each major and practice lesson.	Number	90	0	0	0	90	0	0	0
	%	100	0	0	0	100	0	0	0

Source: Survey figures in September

The results of Table 1 shows that the performance level of students’ practice learning activities is rated “Good” at 80% to 100%; particularly, during class time, students had enough learning materials, practice instruction sheets, and practice report sheets for each practice section. Students had enough time to repeat the practice of a skill many times until they mastered it. Meanwhile, during the practice sessions in workshops or laboratories, 100% of students wore uniform and were fully equipped with labour protection equipment in accordance with the nature of each major and practice lesson.

However, there still exist some limitations in the management of practice activities, in which the content rated at fair level accounted for over 50% as, in the classroom, many students did not seriously concentrate on observing lecturers’ sample operations. Those students have not been fully aware of and motivated in practice learning, as well as not understanding the meaning of students’ practice in vocational training, thus they lacked the positive attitude and self-discipline in learning. In some practice shifts, students did not receive the enthusiastic attention and instruction of lecturers. When students needed to learn and explore the problems, lecturers only provided sketchy answers and did not actively provide instructions for students. Besides, due to the large number of students and practice shifts, weak students were not allowed to practice overtime. In addition, the existing equipment and machinery for practice are old and outdated. Some malfunctioned machines caused difficulties for practice and some have not yet been invested, which also limits students’ research activities and access to new technologies.

### 1.2. MANAGING PRACTICE LEARNING ACTIVITIES OF ENGINEERING STUDENTS IN PRODUCTION ENTERPRISES

Students’ practice learning activities in production enterprises would be aimed at consolidating and applying the knowledge learned and improving students’ vocational practice skills acquired at the University to production practice in production establishments and enterprises, providing students with opportunities to update sufficient information about scientific, technical and employment development after graduation. The survey results are as follows:

**Table 2.** Results of surveying managing officers, instructors and students on the performance of practice learning activities of engineering students in production enterprises

Content	Survey subject/ Performance level								
		Managing officers/ Instructors				Students			
		Good	Fair	Average	Weak	Good	Fair	Average	Weak
The practice plan in production enterprises is disseminated to students at the beginning of the academic year.	Number	40	0	0	0	150	0	0	0
	%	100	0	0	0	100	0	0	0
Students strictly comply with the working regulations of production enterprises and have an industrial working style.	Number	37	3	0	0	141	9	0	0
	%	92.5	7.5	0	0	94.0	6.0	0	0

Students receive the enthusiastic care and guidance of instructors in production enterprises.	Number	12	21	5	2	50	81	11	8
	%	30.0	52.5	12.5	5.0	33.3	54.0	7.4	5.3
Students practice in safe working conditions.	Number	40	0	0	0	150	0	0	0
	%	100	0	0	0	100	0	0	0
Students are arranged to be able to perform tasks and jobs suitable to their training majors.	Number	36	4	0	0	138	12	0	0
	%	90.0	10	0	0	92.0	8	0	0
Students are able to apply, improvise, and expand their knowledge to well perform their practice in production enterprises.	Number	9	24	4	3	44	82	15	9
	%	22.5	60.0	10.0	7.5	29.3	54.7	10.0	6.0
Students receive proper attention, supervision and support from university lecturers during their practice period in production enterprises.	Number	9	23	5	3	52	78	14	6
	%	22.5	57.5	12.5	7.5	34.7	52.0	9.3	4.0
Students receive appropriate remuneration or benefits from production enterprises during the practice process.	Number	32	8	0	0	135	15	0	0
	%	80.0	20.0	0	0	90.0	10.0	0	0
Students receive employment offers from production enterprises after graduation.	Number	34	6	0	0	133	17	0	0
	%	85.0	15	0	0	88.7	11.3	0	0

Source: Survey figures in September 2022

The fact survey on the practice of vocational skills practice associated with production enterprises shows that the practice in production enterprises has been organized in the form of instructors acting as mentors to instruct students during the production process. Students were grouped to deploy the practice steps according to the predefined technological process. At the end of each production practice cycle, instructors organized meetings for each group of students to summarize and evaluate the effectiveness of their acquired professional and technical knowledge and the mastery level of professional skills.

The survey results in Table 2 show that the performance level of practice learning activities rated at “Good” level accounts for 80 to 100%. In order to manage this activity, the University has worked with specialized faculties and businesses to prepare the practice plan to be disseminated to students at the beginning of the academic year for their initiative arrangement of practice. Enterprises assessed that students complied with their working regulations and industrial working style. At the same time, students conducted their practice in safe working conditions and were arranged to perform tasks and jobs suitable to their training majors, received appropriate remuneration and benefits from production enterprises during the practice period. A certain number of production enterprises have been ready to

sign contracts of accepting students' working in their enterprises after graduation.

However, the process of managing students' practice learning activities still involves some inadequacies and limitations, in which some content rated at good level accounts for 50 to 60% as students have not received enthusiastic care and guidance of instructors in production enterprises. It is because, in some places, the staff was too busy to spend their time giving guidance to students. In the practice process, students have not received the attention and support from the University lecturers, and this requires the re-consideration and reflection of lecturers in charge of managing students' practice. They need to pay more attention and closely monitor the process, not leaving this job on the part of enterprises. Moreover, although students have been assigned to tasks and jobs suitable to their majors, they were only able to apply the knowledge learned at the University, but have not yet been able to be creative in their work and expand their knowledge to well perform their jobs in production enterprises and their adaptation to the new working conditions have been still limited.

## **2. SOLUTIONS TO MANAGE PRACTICE LEARNING ACTIVITIES OF ENGINEERING STUDENTS AT VINH LONG UNIVERSITY OF TECHNOLOGY EDUCATION.**

### **2.1. INNOVATING THE MANAGEMENT OF VOCATIONAL SKILLS PRACTICE AT THE UNIVERSITY AND IN PRODUCTION ENTERPRISES**

The University should strengthen the management of skills training activities according to the requirements of the University's training majors. The management should be well organized in order to enhance the sense of responsibility in performing teaching tasks at faculties and academic sections and among lecturers. In order to achieve the management objectives, the Rector must investigate and propose plans and measures in a timely manner to meet the requirements of improving the quality of professional skills training for students by directing the innovation of content, training programs, teaching methods... The University should also establish favourable remuneration policies for lecturers, look for appropriate training methods, foster lecturers' professional qualifications as well as raising lecturers' awareness, interest and enthusiasm in the process of instructing students' practice. Meanwhile, the University should provide lecturers with training in practice teaching so that each student has the ability to apply the learned knowledge to their practice activities and, more importantly, possess the ability to improvise and expand such knowledge in solving emerging problems during their practice period.

The University evaluates the organization results through the implementation of teaching plans of vocational practice skills with regard to the training majors. The results of students' skill assessment are obtained through their "mastery" in the manipulation of the lesson as well as the entire process of practice skills training according to a specific industry or profession. Through the assessment, the University could detect errors in the organization of management activities to make timely adjustment decisions.

For students conducting their practice in production enterprises, the University needs to reinforce the cooperation and sign contracts with the production enterprises in practice teaching and guiding so that students can experience the authentic working environment while still in their learning time at the University. The University should develop a specific annual cooperation plan between the University and production facilities to take the initiative in sending students to their professional internships. The contract clearly states the specific responsibilities of each party. For production facilities as well as a place for students' vocational internships, instructors in production enterprises have to take care of and provide enthusiastic guidance for students, and serve as the University's advisors. Enterprises would also conduct the provision of capable and professional experts to collaborate with the University in guiding and evaluating the results of students' vocational practice during their time in production enterprises. At the same time, the University selects and nominates staff for training and fostering courses held at the University or in production enterprises.

Based on the plan for internship programs between the University and production facilities, the University directs the specialized faculties to prepare specific plans concerning the identification of internship time and content when sending students to the production facilities for each training major. The University has to designate lecturers to be in charge of the internship and coordinate with the staff at production enterprises to agree on planning and preparing the conditions for the internship students. It is also necessary to organize seminars and workshops during students' internship to help them access new information required by production practice as well as improving their awareness and understanding of life and society.

It is required to check the coordination between the University and production facilities when sending students to internship places to take timely measures to deal with problems and errors during the implementation process. The University has to cooperate with leaders of production facilities to test and evaluate students' professional skills after each internship period. On such basis, the

University can summarize and learn from experience in the training cooperation between the two parties to draw lessons in organizing internships in production enterprises.

## **2.2. INVESTING IN AND MANAGING TECHNICAL EQUIPMENT IN SPECIALIZED LABORATORIES AND WORKSHOPS**

The management of technical equipment in specialized laboratories and workshops is aimed to support and enhance the effectiveness of practice teaching activities of the teaching staff. This responsibility also contributes to improving students' professional knowledge and ability to apply them in practice, gradually boosting the effectiveness and quality of future vocational training for VLUTE students.

The University increases the investment in technical equipment and teaching aids to serve students' need of practice learning, build practice workshops and practice rooms, where specific jobs for each profession that students must be able to complete in each semester are described. Lecturers in charge of specific courses must base on the theoretical teaching content and students in each module to set requirements for the provision of relevant equipment, materials and so on. On the basis of the requirements of each lecturer, heads of academic branches and faculties will summarize and make plans for investment in technical training facilities. Heads of units are responsible for summarizing the general requirements for equipment, supplies ... and making budget estimates for practice teaching.

Based on the investment plan for technical equipment for student rooms, managing officers require faculties, academic branches and lecturers using equipment and materials to comply with regulations on management, preservation and maintenance of equipment and supplies for practice teaching.

In the management of teaching activities, it is necessary to strengthen the direction in inspection of the preservation and maintenance of equipment in specialized student rooms in order to lengthen the use time and value of such equipment and materials. The investment in equipment for practice teaching must meet the management requirements such as increasing the quantity of equipment and materials and ensuring the synchronization, modernity and suitability for the vocational practice as well as maintaining the high level of popularity. The Rector needs to invest funds to meet the highest financial demand for purchasing practice equipment for technical majors to ensure the effectiveness of the plan. The University continues to strengthen the implementation of management measures to ensure the safety of humans and equipment when carrying out the practice teaching tasks in student rooms.

## **2.3. RAISING THE AWARENESS OF AND MOTIVATION IN STUDENTS' PRACTICE LEARNING ACTIVITIES**

This solution aims to build students' sense of responsibility for their chosen profession, in which each student must meet high requirements for quality and competence in accordance with the profession's nature and characteristics. The solution also aims to raise the awareness of professional responsibility, build industrial working style, and work discipline in factories and serious learning attitude, thereby forming students' discipline and promoting the formation of habits in complying with study and work discipline.

The solution also involves evaluating students' motivation in learning activities through activities at the beginning of the course, providing career counseling suitable for students, selecting production facilities for students' visit, and teaching special courses before specialized courses through each lecture delivered by lecturers in the workshop.

Via classroom lectures, in-charge lecturers convey the spirit of self-discipline in practice learning, self-study and arouse students' passion for and habit of discovery and creativity, thereby shaping students' learning motivation and attitude. The study also proposes the organization of students' evaluation and self-evaluation through class meetings or group meetings. The solution should also associate students' learning and training results with the benefits that they are able to receive.

It is necessary to regularly attend classes of managing lecturers, lecturers at the beginning of the course or lecturers' regular classes. The monitoring of educating the learning motivation for students through lecturers' teaching records such as teaching plans, lesson plans, and student management records of student managing staff and homeroom teachers.

In order to well implement the proposed solutions, it requires managing officers to always uphold the sense of responsibility and have the awareness of the importance of fostering students' practice learning; therefore, the teaching staff must be really enthusiastic and understand students' psychology and capability to be able to guide students in learning. In addition, the facilities of University and production enterprises must also satisfy students' extracurricular activities, field trips, and learning and research activities.



## CONCLUSION

The management of practice learning activities of engineering students at Vinh Long University of Technology Education is considered an important and essential requirement in training students, especially engineering students. The innovation of practice management at the University and production enterprises, the investment in equipment as well as the positive change in students' learning awareness and motivation will help enhance the quality of vocational skills training for students, contributing to improving the training quality of high-tech human resources to meet the practical requirements of the engineering industry in the period of national industrialization and modernization.

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