



The Role of Reflective Practice in Vocational Apprenticeship Learning Outcomes among Students of Civil Engineering Program in Indonesia

Arizal¹, Puguh Novi Prasetyono², Feriza Nadiar³, Fransiskus Xaverius Maradona Manteiro⁴, Irfan Prasetyo Loekito⁵, Arifiano Satria Utama⁶, Silviana Damayanti⁷

¹ Universitas Negeri Surabaya, Ketintang, Indonesia

² Universitas Negeri Surabaya, Ketintang, Indonesia
puguhrasetyono@unesa.ac.id

³ Universitas Negeri Surabaya, Ketintang, Indonesia

⁴ Universitas Negeri Surabaya, Ketintang, Indonesia

⁵ Universitas Negeri Surabaya, Ketintang, Indonesia

⁶ Universitas Negeri Surabaya, Ketintang, Indonesia

⁷ Universitas Negeri Surabaya, Ketintang, Indonesia

Abstract. This research examines how reflective practice influences learning outcomes in vocational apprenticeships for civil engineering students in Indonesia. We use qualitative research methods to gain a detailed understanding of this process. Our study is based on Theory of Reflective Cycle, which provides a structured way to think about and learn from experiences. Reflective Cycle includes several important steps. Description involves describing what happened during the apprenticeship, such as tasks performed and situations encountered. Feeling focuses on how students felt during these experiences, including their emotions and reactions. Evaluation is about assessing what went well and what did not, considering the strengths and weaknesses of their performance. Analysis involves looking deeper into why things happened the way they did and understanding the reasons behind the outcomes. In our research, we explore how students use these steps to reflect on their apprenticeship experiences. We look at how describing, feeling, evaluating, and analyzing their experiences helps them learn and improve. By studying these aspects, we aim to show how reflective practice contributes to better learning outcomes and skill development. This research highlights the role of Gibbs' Reflective Cycle in helping civil engineering students understand their experiences and enhance their learning during vocational apprenticeships.

Keywords: Vocational Apprenticeship, Civil Engineering, Reflective Practice, Professional Growth.

1. Introduction

1.1. Background and Research Problem

Student internship activities are one of the learning activities held outside the classroom and even outside the campus, and are carried out in a period of 1-2 semesters. Internship activities are a learning activity that has often been raised in many previous studies in Indonesia. Several previous studies on internship activities focused on the impact or influence of internship experiences on improving students' skills and abilities [1] [2] [3].

Several other previous studies discussed how internship experiences relate to and even influence work readiness [4] [5]. Based on a brief review of several previous studies on the topic of internships, it can be seen that many of these studies focused on the issue of the influence of internship activities on academic achievement and career development of students as prospective workers in their fields. This study does not focus on such influences, but rather, this study focuses on the internship process itself. In addition, in particular, this study discusses the issue of reflective practice as one of the things that occurs during the internship. Reflection and reflective practice are concepts that are closely related to educational practice, which can be defined as the activity of thinking about past or ongoing experience of events, situations or actions so as to make sense of them, potentially with a view to informing choices, decisions or actions in the future[6].

1.2. Research Aim Related to Theoretical Review

This research aims to investigate the enhancement of learning outcomes through reflective practice among students participating in vocational apprenticeships.

1.3. Literature Review

To achieve the research objectives, this study relies on the Reflective Cycle Theory. There are several important things to note, namely Description, Feelings, Evaluation, Analysis. Describing events reflectively allows us to retell what happened, where it happened, and who was involved, by focusing only on the facts [7]. Because feelings often guide the way we interact with situations and others, emotional responses during experiences can shape decisions and behaviors[8].

Effective things can reinforce effective practices, while negative things provide insights that can lead to better outcomes in the future [9]. Reflective analysis encourages people to learn from experiences, allowing for the development of future practices [10]. Reflective thinking fosters a deeper understanding of actions and motivates people to make better choices in similar situations [11].

2. Method

2.1. Research Design

The study is grounded in qualitative study methods, with a specific concentration on narrative examination to comprehend and comprehend individual narratives. Qualitative approaches pursue to expose deeper understandings into human behavior and social relations through rich, narrative data, while description examination attentions on assembling and investigating personal stories to better recognize the way individuals perceive and narrate their own experiences [12] [13].

2.2. Research Participant

The study includes informants who are purposefully selected to enhance the significance of the findings. Researchers engaging purposive sampling make deliberate choices to include participants who have explicit information or standpoints that are critical to the research inquiries, allowing them to gather comprehensive and relevant information that might be missed with other sampling procedures [14].

2.3. Data Collection

This research employs interview, principally semi-structured interview. Interviews are employed in qualitative research to prompt in-depth and individual responses from participants through a dialogue process, and semi-structured interviews are precisely intended to offer a balance between a fixed set of queries and the flexibility to discover developing themes and participant understandings [15] [16].

2.4. Data Analysis

This study uses a qualitative descriptive analysis method. Descriptive analysis is a data analysis activity that includes efforts to categorize and summarize qualitative data into themes that describe the main characteristics and patterns of data but only at the surface level [17].

3. Result and Discussion

During the internship, there were several memorable things that the interns considered to be full of challenges. These things are as follows: 1. when the interns were assigned to be in Quantity Surveyor. where there were five buildings under construction and they had to complete the task of calculating the material requirements within one week for one building. 2. When the interns were given the task of positioning the prism rod in the ground water tank area in determining the position of the Strauss foundation for the PJU lights where they had to enter the excavation area approximately six meters deep.

The internship students had an impressive and challenging experience when they worked on activities to position the prism rod in the ground water tank area in

determining the position of the strauss pile foundation for PJU lights, and when they worked on the reinforcement checklist and calculated the casting needs and they were given the responsibility to ensure that the field conditions were in accordance with the company's standards. The following is one statement from an internship student "When I help the implementer to check the reinforcement and calculate the casting needs. I play a role in ensuring that the field conditions are in accordance with the standards of PT.PP. Usually the people involved at that time are reinforcement workers, formwork, casting, surveyors, field implementers, supervisors and QC. These activities are always carried out when the field conditions are ready for casting, either in the morning, afternoon or evening."

Before the internship activity began, the student interns felt very enthusiastic and excited to do the internship because they wanted to gain new knowledge and work experience and wanted to know how a construction project can run and which parties work in a construction project, they also wanted to be able to apply the knowledge they had learned in college directly to the construction industry during the internship activity. Here is one statement from a student intern "I am very enthusiastic and excited because this is an opportunity to gain real work experience and apply the knowledge I have learned."

During the internship, student interns feel tired or overwhelmed because they are required to learn a lot about new things in the project that they did not get during lectures. In addition, they are also confused when given tasks outside their expertise, and are satisfied and proud when they succeed in completing the tasks given by the supervisors in the field because they have contributed to real projects and seen the impact of the work. Here is one statement from a student "intern: the feeling when the internship is taking place is that there is a feeling of confusion or being overwhelmed with the tasks given, especially if the task is outside the area of expertise. and I also feel satisfied when I succeed in completing the tasks given by the field stakeholders. I feel proud to be able to contribute to real projects and see the impact of the work."

When student interns have negative thoughts and feelings, such as anxiety caused by fear of not being able to complete the task well, student interns try to overcome this by communicating with their field supervisor, so that he/she can provide direction and encouragement to help interns reduce their anxiety. In addition, they also apply stress management techniques such as taking a short break while working, doing light exercise. In addition to anxiety, there are also interns who feel sad due to various factors, they have their own ways to still be able to condition these feelings so that they can still complete their work during the internship professionally.

Internships undertaken by students are considered successful when they successfully help develop new skills and deepen the skills learned during lectures. Internships provide real-world experience relevant to the field of study, involve participation in projects, and teach communication and collaboration with coworkers. Internships also help in developing skills, knowledge, relationships, and mindsets about the world of work, including how to overcome difficulties in construction projects.

Internship students conveyed several aspects that can be concluded as aspects of successful internships, namely when intern students get a place to learn and develop skills that are in accordance with their fields, can carry out tasks well, meaning that the tasks are completed on time and with good quality, get good

relations from the industry and students. In addition, intern students can develop professional relationships with supervisors and other construction workers, which is an important aspect of the indicator of successful internships because it can have a good effect when the student has graduated from campus and is ready to enter the industrial world, especially the construction industry.

Internship students conveyed several aspects that can be concluded as aspects of failed internships, namely when interns have poor communication, both with supervisors, mentors in the field, to workers and fellow students, do not have the initiative to ask other people when they do not know the details of their job description, and when they only do tasks that are too monotonous or simple such as printing, scanning and others so that they do not have the opportunity to hone the skills needed that are in accordance with the industrial world.

Internship students always try to take the initiative and think of new alternatives in finding solutions, do not hesitate to offer new ideas to the person concerned and persist in facing the difficulties that will definitely occur by finding solutions in dealing with problems that occur through communication and are not ashamed to ask mentors and supervisors and co-workers to get guidance and direction and divide tasks to lighten the workload, and shorten the work time while ensuring that the work is in accordance with applicable company standards.

Internship students feel confused and do not understand the assignment given, but they try to improve their attitude by asking the supervisor and asking for examples to clarify the concept of the assignment given. Discussion with friends also helps provide a different perspective or view in understanding the explanation. Here is one statement from an internship student "I feel confused and do not understand the meaning of the assignment given by the field supervisor. Actually I can behave better than that attitude. I ask the field supervisor questions about the part that confuses me. I ask for an example to help understand the concept of the assignment explained. Sometimes, I also discuss with friends who are also studying in this case can provide a different perspective and help in understanding the explanation from the field stakeholders."

The internship students initially did not understand how to operate the theodolite measuring instrument, but after getting assignments to use the instrument such as shooting the sloof axis point and pedestal column anchor and mentoring from the field supervisor, they became accustomed to using it. In addition, they also learned about how it works, parts, functions and types and stages of installing a formwork until the formwork is ready for casting through observation and asking construction workers during the installation and erection process.

According to statements from student interns, internship experience is something that greatly supports their future careers by providing an opportunity to apply lecture theory to real situations and build professional networks with people in the construction industry directly. This network will help in finding a job or getting references in the future after graduating from college. Here is one statement from a student intern "This internship experience greatly supports my future in terms of my future career. During the internship, I had the opportunity to apply the theories learned in college to real situations in the field. This internship allows me to build a professional network with stakeholders, supervisors, and other professionals in the

company. This network can be very helpful in finding a job in the future or getting good references."

4. Conclusion

There are memorable events during the internship, which are considered as challenges. Students have their own thoughts and feelings about the internship, before the internship begins. Students have their own thoughts and feelings about the internship, while the internship is running. The thoughts and feelings of students have more or less influenced their daily lives in carrying out tasks/work during the internship. Students can assess the extent of the success of the internship activities that have been carried out. There are aspects of the internship that can be said to be successful. There are aspects of the internship that can be said to be unsuccessful. Students have an attitude to face challenges during the internship. Students have an evaluation of their attitude to face these challenges, including how to behave better than at that time. Students think about how their own skills can improve from previously being less skilled to being skilled. Students see a connection between internship experiences and future aspirations in terms of career/professionalism in the field of civil engineering.

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