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Utilizing Problem-Based Learning For Enhancing Critical Thinking In Leadership and Teamwork Education

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Abstract: Managerial competence is the ability to manage resources through planning, organizing, implementing, and supervising activities to achieve organizational goals effectively and efficiently, especially in terms of the art of leading, controlling, commanding, coordinating, transacting, and serving which a manager must have in achieving goals organization. Therefore, this can only be obtained in leadership and teamwork courses. However, the current approach to teaching these skills often yields suboptimal results in terms of attitudes and learning outcomes. In response, we conducted a study aimed at elevating the quality of leadership and teamwork instruction through the implementation of a problem-based learning approach. This method prompts students to solve practical challenges simulating real-world workplace situations. This study used a qualitative approach with the Lesson Study method and Cluster Random Sampling with a study population of 24 participants consisting of 19 male and 5 female participants. The results showed that our research revealed 91.67% of participants achieved a score of at least 80, surpassing the targeted objective of 85%. Moreover, student engagement exceeded expectations, with an average activity rate of 86.67% against a target of 80%. In conclusion, the utilizing of problem-based learning models can improve students' critical thinking skills in leadership and teamwork lessons.

Keyword: Leadership, Teamwork, Learning Mode, Problem-Based Learning, Managerial Competence.

INTRODUCTION

The realm of maritime work is undeniably intriguing, particularly as it offers unique experiences, predominantly for sailors, especially ship captains and officers. Ascending to the position of a ship captain or officer entails a demanding blend of technical prowess and adeptness in managing complex social dynamics. Among the essential proficiencies requisite for individuals in these leadership roles is managerial competence.

Managerial competence encapsulates the ability to navigate resources through the stages of planning, organizing, executing, and monitoring activities, all geared towards effectively and efficiently accomplishing organizational objectives. The significance of this competency cannot be overstated, for leadership aboard a vessel demands not just technical expertise but also the skill to optimize available resources in achieving collective objectives. In parallel studies, it has been underscored that management encompasses the art of guiding, supervising, directing, coordinating, transacting, and serving—a skill set imperative for any manager to successfully steer an organization towards its goals.

Educational institutions specializing in maritime education are committed to enhancing the managerial competence of future ship officers through lessons on leadership and teamwork. This form of education should ideally be captivating, offering students the prospect of gaining fresh and intriguing insights during their academic journey. However, in reality, some students still find themselves unsatisfied with their grades and, worse, disengaged with the learning process..

The pedagogy of leadership and teamwork can become dreary if it solely relies on conventional methods like lectures, which often fail to captivate students and are viewed as uninspiring. Such uninspiring classroom dynamics can erode enthusiasm for learning and adversely impact academic performance.

The subpar outcomes of students can be attributed to a lack of innovative teaching methods being employed in the classroom. When traditional methods fail to engage students, educators must promptly innovate by introducing more student-centric approaches. Innovation in education can significantly enhance the quality of learning and student outcomes by integrating cutting-edge technology and modern teaching methodologies. The shift from teacher-focused to student-focused learning is paramount; the traditional lecture model, characterized by passivity on the part of students who merely listen, should no longer suffice for subjects like leadership and teamwork.

The sight of disengaged students in the classroom can serve as a catalyst for educators to seek innovative and creative teaching methodologies that better resonate with their audience. Educators often grapple with various student-related challenges, such as apathy, lack of motivation, and discouragement. These issues should not be left unaddressed, as they can detrimentally affect the overall quality of education. In this context, a problem-based learning model emerges as a viable solution and an apt choice for maritime educational institutions, especially in subjects like leadership and teamwork. The problem-based learning model necessitates active student participation in solving challenges posed by educators in the classroom. This proactive engagement not only eradicates the monotony associated with traditional learning but also empowers students to grapple with real-world workplace situations.

Problem-based learning is a pedagogical approach that challenges students to "learn how to learn" and collaborate within groups to craft solutions to authentic, complex problems. When students learn to find solutions and make decisions individually or in group discussions, it can improve their critical thinking skills about the various problems they face. This is in line with the findings of other research, which have shown that the Problem-Based Learning (PBL) model is an effective way to improve students' critical thinking skills. PBL is a learning model that engages students in solving real-world problems, both individually and in groups. This requires students to use their critical thinking skills to identify the problem, gather information, develop solutions, and evaluate their results.

Currently, the demand for problem-based learning approaches is surging among educators due to their potential to invigorate classroom dynamics and infuse students with enthusiasm. This methodology is particularly well-suited for subjects like leadership and teamwork, which draw heavily from real-world experiences aboard ships and in students'

daily lives. Additional research has also emphasized that the application of problem-based learning models can enhance learning outcomes and sharpen students' critical thinking abilities, specifically in terms of problem identification, reasoning, and problem-solving evaluation. The versatility of this learning model extends beyond the social sciences, making it adaptable for use in various academic disciplines, including the realms of science and technology. Problem-Based Learning (PBL) has emerged as a transformative approach in the realms of engineering and mathematics education.

This pedagogical model encourages educators to engage their students in collaborative problem-solving, adding an element of intrigue to the teaching and learning process. Addressing these problems not only motivates students but also nurtures critical thinking skills, subsequently fostering innovation and creativity. Classroom discussions further amplify students' interest, strengthening their ability to critically analyze problems and propose viable solutions.

Critical thinking, an essential skill, entails comprehending, analyzing, and evaluating information to make well-considered, rational decisions. The selection of solutions must be underpinned by sound reasoning and robust justifications. It necessitates a deep understanding of the core issues, followed by meticulous analysis and continuous reassessment. In group settings, every member possesses the right to express their opinions or solutions, which are subject to group discussions. Once a consensus is reached, the findings can be presented in class, inviting input and questions from other groups. This structure compels students to master the subject matter, speak confidently, and engage in debates grounded in both theory and real-world perspectives. Consequently, students refine their critical thinking skills, bolster their thirst for knowledge, and enhance their capacity to understand, analyze, and assess incoming information. Critical thinking is, in essence, the ability to think logically and systematically with the objective of comprehending the interplay between ideas and facts.

This study endeavors to apply problem-based learning to elevate critical thinking skills within the context of leadership and teamwork education. Interviews with teaching staff and students in this discipline revealed the following: 1) Traditional teacher-centered lectures still dominate the classroom; 2) The prevailing approach does not prioritize the cultivation of students' critical thinking abilities; and 3) Educators exhibit limited creativity when applying innovative teaching models.

In light of these challenges, the researchers sought to introduce problem-based learning (PBL) to invigorate student engagement and enhance their critical thinking prowess. This research assumes significance as it aims to elevate the quality of education in leadership and teamwork courses by adopting a problem-based learning model. This model encourages students to tackle authentic, real-world problems, thus equipping them with essential knowledge, communication skills, teamwork capabilities, and the ability to think both rationally and critically. These proficiencies are indispensable in the business world, industry, and the workplace, which graduates of maritime education institutions, particularly those specializing in maritime transportation, are poised to encounter.

METHOD

This research adopts a qualitative research approach, which seeks to comprehend intricate phenomena from the perspectives of the involved subjects and their social context. The qualitative approach is apt for educational research as it focuses on enhancing the quality of learning to align with the evolving demands of the modern world. The primary objective of qualitative research is to attain a profound understanding of the phenomena under scrutiny.

The research methodology incorporates Lesson Study, encompassing three key stages: planning (plan), implementation (do), and reflection (see). This method is particularly

effective for conducting classroom action research, enabling meticulous examination of every facet of the teaching and learning process. Lesson Study comprises three essential components: model teachers, observers, and students.

Essentially, this study constitutes classroom action research (CAR), a powerful instrument in enhancing the quality of learning for professional educators. This approach aligns seamlessly with the Lesson Study method, adopting a qualitative perspective. The classroom action research guided by Lesson Study unfolds in three stages: 1) Planning (Plan): This initial stage involves thorough preparation, including the development of all necessary materials for the problem-based learning model, such as lesson plans, learning resources, observation sheets for educators and students, and assessment instruments; 2) Implementation (Do): This phase encompasses two vital activities: a) educators execute teaching and learning using the problem-based learning model, and b) ongoing observation occurs during the teaching and learning process; and 3) Reflection (See): In this final phase, insights gained from the preceding stages inform an evaluation that serves as valuable input for future planning.

Researchers employed Cluster Random Sampling as the chosen sampling technique for this study. This method is specifically useful when the population exhibits apparent uniformity but internal diversity. In cases where the population comprises groups rather than individuals, cluster sampling, also known as Cluster Random Sampling, is the preferred approach. In this study, Cluster Random Sampling was employed to select students from Nautika IV/C class at POLTEKPEL Malahayati. The sample consisted of 24 participants, comprising 19 males and 5 females.

Data collection instruments included observation sheets and critical thinking ability tests related to leadership styles. The observation sheet encompassed the following indicators: 1) Participation and engagement in discussions and questioning; 2) Authentic investigative practices; 3) Teamwork skills; 4) Interdisciplinary connections; and 5) Presentation assignments. Additionally, the critical thinking ability test consisted of an Essay Test comprising ten questions related to leadership styles. The collected data comprised observations of student activities during teaching and learning sessions and their critical thinking abilities. These data were analyzed and presented as a dataset to derive meaningful insights. The study's success was measured using two indicators: 1) Student participation in problem-based learning activities reaching a minimum of 80%; and 2) At least 80% of students achieving a critical thinking ability score of 80 or higher. Descriptive statistics were employed to elucidate the study's situation, symptom, or problem.

The critical thinking indicators were designed to assess the extent to which students engaged in critical thinking during the learning process. High-disposition critical thinking students were assessed based on three critical thinking indicators: analysis, evaluation, and inference. In contrast, other studies include interpretation, analysis, evaluation, and inference as critical thinking skill indicators. Data analysis proceeded through three stages: data reduction, data presentation, and drawing conclusions.

RESULTS AND DISCUSSION

The research process using the Lesson Study method commenced with the first stage, Planning. During this phase, the researcher developed a lesson plan utilizing a problem-based learning model, prepared the learning materials, and created observation sheets for teaching and learning activities. Instruments to gauge learning outcomes were also prepared. This stage included Focus Group Discussion (FGD) sessions involving management personnel, teaching staff responsible for leadership and teamwork subjects, and educational staff from the nautical study program. The goal was to gather input regarding the instruments to be used during the learning process

The second stage, Implementation, involved educators delivering teaching and learning activities based on the previously agreed-upon lesson plan prepared during the FGD sessions. The testing process comprised three sessions, each lasting 60 minutes, using the problem-based learning model and focusing on leadership style material. The first session concluded on June 9, 2023, as depicted in Picture 1, with observation results presented in Figure 1.

Picture 1. The First Teaching Learning Activities

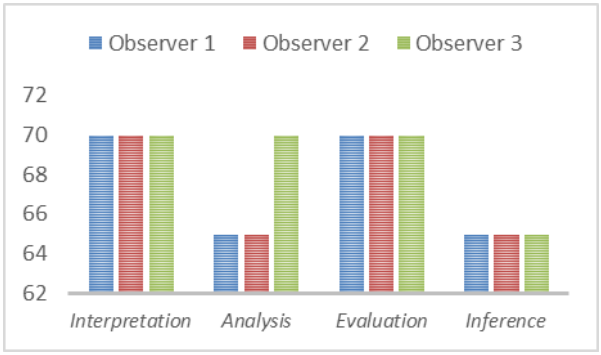


Figure 1. The Average of first Activity

The third stage is reflection (see), where we engage in observation and evaluation of the preceding learning process. Upon reviewing the observation scores presented in Figure 2, it becomes evident that the average level of student engagement in classroom activities related to critical thinking indicators is 67.92%. This figure falls short of the success threshold of 80%. Furthermore, when considering the results of the critical thinking ability test following the first learning activity, only 70.83% of participants, or 17 out of 24 students, achieved a minimum critical thinking ability score of 80%. Regrettably, this outcome still falls below our target of 80% success.

The implementation of the initial learning activity revealed several weaknesses based on observation results, including: 1) Non-sequential Lesson Plan Execution: Educators did not strictly adhere to the sequentially outlined lesson plan derived from the Focus Group Discussion (FGD) outcomes; 2) Student-Centric Approach: The teaching and learning activities remained predominantly centered on the students; 3) Lack of Stimulating Questions: Educators did not provide questions that could stimulate greater student participation; 4) Suboptimal Individual and Group Guidance: Individual and group guidance did not reach its full potential; and 5) Deficiencies in Leadership and Teamwork Skills: Some students demonstrated shortcomings in their leadership and teamwork abilities. These identified weaknesses have contributed to the relatively low level of student activity and learning outcomes. To address these issues and align with the predefined success indicators, a second assessment is deemed necessary.

The second testing activity entails revisiting the planning stage (plan) to enhance the planning process before educators proceed with classroom implementation. This second activity took place on June 16, 2023, and the process is depicted in Picture 2, with observations during the learning process illustrated in Figure 2.

Picture 2. The Second Teaching Learning Activities

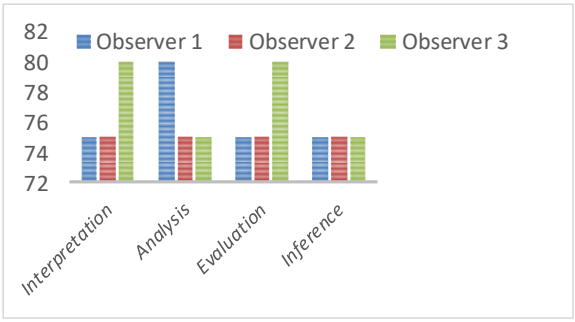
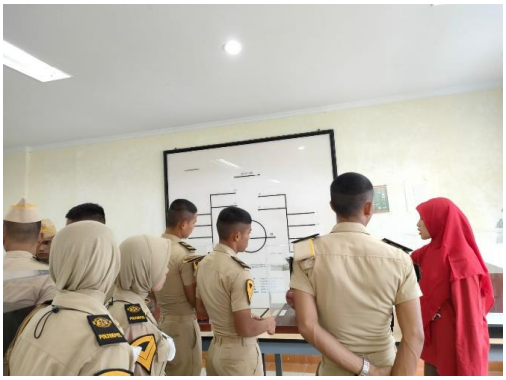


Figure 2. The Average of second Activity

Figure 2 presents the average level of student engagement during the learning process concerning critical thinking indicators, which stands at 76.25%. Although this marks an improvement, it still falls short of the 80% indicator threshold. Moreover, upon evaluating the results of the critical thinking skills test conducted after the second learning activity, we find that 79.17% of participants, or 19 out of 24 students, attained a minimum critical thinking ability score of 80%. While this demonstrates progress, it has not yet met our anticipated level of success.

The second testing activity yielded several key findings from observations, including: 1) Incomplete Lesson Plan Implementation: Educators still encountered difficulties fully implementing the prepared lesson plan; 2) Underutilization of Resources: Educators did not fully guide students in sourcing reliable information to address problems, despite the availability of various facilities; and 3) Collaboration Challenges: Some team members within groups continued to face difficulties working together to solve problems. These identified issues continue to impede student activities and learning outcomes from reaching the target of success. Consequently, a third testing activity is deemed essential.

The third testing activity involves revisiting the planning stage (plan) after returning to the previous phase. The third activity was carried out on June 23, 2023 and the process is depicted in Picture 3, with observations during the learning process illustrated in Figure 3.



Picture 3. The Third Teaching Learning Activities

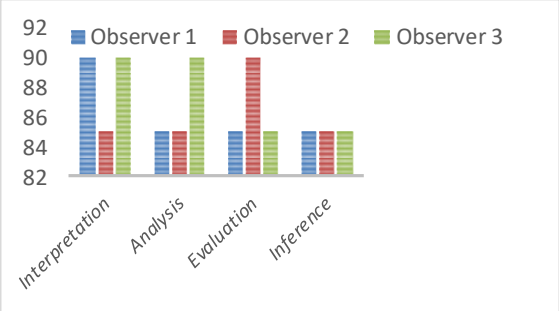


Figure 3. The Average of third Activity

Figure 3 reveals that the average level of student engagement during the learning process, particularly regarding critical thinking indicators, stands impressively at 86.67%. This figure comfortably exceeds the predefined indicator threshold of 80%. Furthermore, the results of the critical thinking skills test, administered to 24 participants, demonstrate a remarkable achievement, with 91.67% of students attaining a minimum critical thinking ability score of 80%. This outcome not only meets but surpasses the targeted success rate of 80%.

Many of the issues that initially hindered satisfactory activity levels and learning outcomes have been addressed, propelling the results to surpass our predetermined goals. Notably, the pivotal factor contributing to this success has been the professional competence of our teaching staff. This competence encompasses a profound understanding and effective application of educational principles, encompassing philosophical, psychological, sociological, and more. It entails the educators' ability to not only comprehend subjects comprehensively but also to grasp the foundational framework of the learning process. In addition, it calls for the development of innovative, progressive, and interactive teaching methods to achieve learning objectives. Enhancing education quality through learning is an ongoing endeavor, far from being resolved by a single test. It necessitates a continuous, iterative process that aligns with the rapid developments in science and technology. This imperative compels educators to cultivate innovation and creative thinking, equipping them to effectively educate and nurture future generations prepared to tackle the dynamic demands of the business world, industry, and the workplace. This holds particularly true in the field of shipping, the focus of our research.

CONCLUSION

The adoption of problem-based learning models demonstrates a substantial improvement in students' critical thinking skills within leadership and teamwork courses. This is evident in the noteworthy rise in both student activity percentages and learning outcomes throughout the problem-based learning process. The implications of implementing

the problem-based learning model extend beyond its applicability in diverse classroom settings. It underscores the pivotal shift from a teacher-centric to a participant-centric learning approach. Consequently, it serves as a testament to educators' innovation within the classroom.

With an average student activity rate of 86.67% and 91.67% of participants achieving the minimum score of 80, these results not only meet but surpass the pre-established targets. Each testing activity exhibited improvement, particularly in the planning phase. As we look to future research, we aspire to conduct Focus Group Discussions (FGD) with a more concentrated focus on learning planning and classroom execution, thereby further enhancing our educational practices.

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