



Strengthening Pedagogical Skills of IT Students in Implementing Merdeka Curriculum for Vocational High Schools Through Micro Teaching Course

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ABSTRACT

The Merdeka Curriculum was implemented simultaneously across all SMKs in the academic year 2022-2023. IT students need to have good pedagogical skills in teaching and designing effective learning materials to ensure the successful implementation of the Merdeka Curriculum. This study aims to: (1) determine the pattern of micro teaching activities to strengthen the pedagogical skills of IT students in implementing Merdeka Curriculum; and (2) analyze the impact of micro teaching patterns activities on students' pedagogical skills in implementing Merdeka Curriculum. The method that used in this research is a qualitative research method with descriptive qualitative approach. The results of this research were (1) There are 7 sequential topics in the pattern of micro learning activity, that are concept of micro teaching, curriculum analysis, lesson planning analysis, basic teaching skills analysis, developing learning resources, microteaching practice, and reflection; and (2) There was an impact of the micro teaching activity pattern on students' pedagogical skills in implementing the Independent Curriculum as indicated by an average pedagogical skill of 89.56%. This research provides a better understanding of the role of micro teaching courses in strengthening the pedagogical skills of IT students in implementing the Merdeka Curriculum in the IT field of vocational high schools. They become more confident in designing learner-centered materials and implementing active learning approaches. The direct interaction with peers and instructors fosters valuable feedback that supports the continuous development of their pedagogical abilities.

Keywords: *Pedagogical Skills, Merdeka Curriculum, Vocational High Schools, Micro Teaching.*

1. INTRODUCTION

Vocational education has a very important role in providing graduates who are ready to work and become entrepreneurs according to certain fields of work. Vocational education in Indonesia has become an integral part of the national education system to prepare students with practical skills relevant to a particular field of work [1]. Vocational education aims to develop knowledge, skills, attitudes and work habits that are useful for individuals so that they can meet work, social, political and economic needs according to their uniqueness [2-3].

Vocational education, including Vocational High School, has a central role in efforts to improve the quality of human resources in Indonesia in the face of massive technological developments [1][4]. Vocational High Schools produce qualified prospective graduates who are ready to work and are equipped with the

knowledge, skills, and work attitudes that are in line with the needs of the business and industrial world [5-6]. Therefore, Vocational High Schools in Indonesia need to equip graduates with soft skills and hard skills that are in line with current industry needs so that they can easily adapt to technological developments in the industry when they work later [7]. To meet these needs, it is necessary to apply the right curriculum and the right learning process at Vocational High School.

Along with technological developments and the demands of the world of work that are constantly changing, it is important for teachers in Vocational High Schools to continue to strengthen their pedagogical abilities so that they can implement the curriculum and organize the learning process well. Pedagogical skills involve appropriate teaching methods, class management, and student assessment according to the scientific field to be taught [8-9]. Teacher competence in accordance with their field of practical expertise is

urgently needed in today's Vocational High Schools [10]. Teacher competence in the form of pedagogic, professional, personality, and social abilities supported by proper learning implementation can train students' hard skills and soft skills well [11].

The expectation for educational study programs, particularly in the Faculty of Engineering, is to produce competent graduates who can become proficient educators in Vocational High Schools. One of the study programs to prepare informatics teacher candidates in the Engineering Faculty is known as Informatics and Computer Engineering and Education (ICEE). This program specifically focuses on equipping prospective teachers with the necessary skills in the field of Informatics Engineering. The primary goal of ICEE is to produce educational scholars as prospective teachers that capable of teaching Informatics and Computer Engineering subjects, especially at Vocational High Schools.

Some of the challenges faced by the ICEE Study program in recent years are the covid pandemic situation. The outbreak of the Covid-19 pandemic has necessitated a shift from traditional classroom learning to online learning, resulting in significant changes in the educational landscape and its implementation. One of the advantages of online learning is its inherent flexibility in terms of time and space, aligning with the envisioned future of education [12]. Meanwhile, the sudden transition to online learning and the overall disruptions to university life and corresponding support services negatively impacted the learning experience and drastically interrupted opportunities for soft skills development [13-15]. The educational system should prioritize the integration of soft skills into curriculum redesign, focusing on incorporating activities and learning experiences that harness the potential for soft skills development [16]. This approach will contribute to fostering greater opportunities for the acquisition and enhancement of students' soft skills.

In 2020 the government is redesigning the curriculum for every level of education in Indonesia, in an effort to decrease the negative impact of Covid on education, starting at the tertiary level. In 2021, the Ministry of Education created a Vocational High School Centre of Excellence which was implemented in several Vocational High Schools in the context of redesigning and testing a new curriculum. The goal is to develop a vocational education system that is more responsive to changing societal needs in line with industrial developments in the world of work [17]. Furthermore, in 2022, a new curriculum called the independent curriculum will be implemented simultaneously in all parts of Indonesia. There are many differences between the Merdeka Curriculum and the previous curriculum.

Merdeka Curriculum aims to produce graduates who are ready to compete in the digital era and face global challenges.

In facing curriculum changes and challenges to education that have arisen after the Covid-19 pandemic due to online learning, ICEE students who will become vocational high school teacher candidates need to strengthen their competence in informatics, hard skills, soft skills, and especially pedagogical skills. Teachers need to stay updated with technological advancements and effectively utilize them as instructional tools during the learning process [7]. They must be able to teach students effectively, use the latest technology, and integrate the principles of the Merdeka Curriculum into their teaching methods.

The problems that arise when students carry out internships at school are: (1) students lack confidence in teaching in the classroom because they are used to dealing with computer devices during online learning for 2-3 years; and (2) students have problems processing and delivering learning material when dealing directly with students in the classroom because usually the material is available on a computer screen during online learning. The covid-19 pandemic and curriculum changes suddenly caused a lack of sufficient preparation for ICEE students who wanted to become vocational education teachers. Therefore, strengthening pedagogical abilities needs to be done so that students are ready to carry out internships at school [18].

One effective approach to improve the pedagogical skills of ICEE students is through micro teaching courses. Micro teaching is a course of the ICEE study program that aligns with the Technological Pedagogical and Content Knowledge (TPACK) framework [18]. TPACK refers to the essential knowledge teachers require to successfully incorporate technology into their instructional methods [19-20].

TPACK framework model can be seen in Figure 1. The TPACK model consists of three main components and four integration components (a combination of the main components). The main components consist of Content Knowledge (CK), Pedagogical Knowledge (PK), and Technological Knowledge (TK). Furthermore, the integration component consists of Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK) and Technological Pedagogical and Content Knowledge (TPACK) [21]. Professional teachers must have adequate TPACK competence, because TPACK is in the realm of the four main competencies of a teacher which include pedagogical competence, personal competence, social competence and professional competence [22]. Integrating TPACK is able to increase self-confidence and improve teacher

content, pedagogic, and technological competencies in designing learning [23]. A good learning design is expected to guarantee the implementation of learning in accordance with the demands and changes that occur.

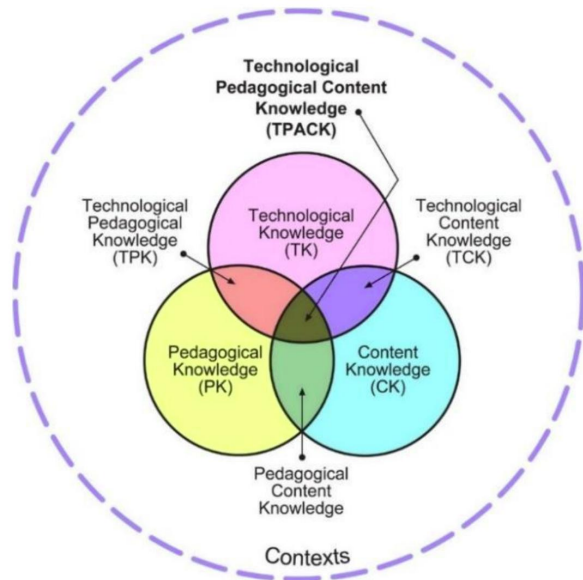


Figure 1. TPACK Framework Model and Its Components [20].

Micro teaching provides a learning approach that involves teaching sessions that are recorded and evaluated by fellow students and lecturers. IT students can use micro teaching courses to practice the teaching techniques they are learning, receive constructive feedback, and gradually develop their pedagogical skills. Both hard skills and soft skills, can significantly improve teachers’ innovation and performance [24].

This article discusses the need to strengthen the pedagogical skills of IT students in implementing the Independent Curriculum for vocational high schools through micro teaching courses. The aims of this study were: (1) to determine the pattern of micro teaching activities to strengthen the pedagogical skills of IT students in implementing Merdeka Curriculum; and (2) to analyse the impact of micro teaching patterns activities on students' pedagogical skills in implementing Merdeka Curriculum.

2. METHODOLOGY

This research using qualitative research method to find the appropriate with a qualitative descriptive approach to determine and analyse the pattern of micro teaching to strengthen the pedagogical skills of the Merdeka Curriculum. Qualitative research entails gathering a diverse range of data from multiple sources to achieve a comprehensive understanding of individual participants, encompassing their viewpoints,

perspectives, and attitudes. This process typically involves an inductive examination of the data to identify common themes, patterns, or concepts, followed by the description and interpretation of these categories. [25].

This research was conducted for 1 semester by observing learning activities in micro teaching courses of ICEE students. The research based on case studies of the semester lesson plan with a sequence pattern for micro teaching materials in a class. The research subjects were 5th semester ICEE students who took micro teaching course in odd semester of the 2022-2023 academic year.

Data collection techniques used in this study include documentations, observations, interviews, and tests. Documentation and literature studies are used to see the student scores in learning pedagogic subjects in the previous semester. Observation techniques are carried out to see the performance of micro teaching practical activities by practicing students. Interviews were conducted post-practice to gather insights and gather information regarding the students' experiences during their practical sessions. The forms of the tests in this study are develop lesson plan and instructional media, testing student performance in conducting micro teaching practices. To assess the performance of micro teaching, a standardized rubric and observation sheet developed by the Teacher Professional Education in Indonesia were utilized as research instruments.

The pedagogical skills indicator was developed from Government Regulation No. 19 of 2005 concerning Indonesian National Education Standards. The Indicators of pedagogical skills can be seen in Table 1.

Table 1. Indicator of Pedagogical Skills

No	Indicators
1	Understanding the characteristics of students
2	Learning design and planning
3	Implementation of learning
4	Evaluation of learning outcomes
5	Develop students to actualize their various potentials

3. RESULTS AND DISCUSSION

This section presents the results and discussion of micro teaching pattern to strengthen the pedagogical skills of the Merdeka Curriculum and their impact on students’ pedagogical skills in implementing Merdeka Curriculum. The research findings utilize data that is derived from natural settings, occurring organically within the learning process.

3.1. The Patterns of Micro Teaching Activities to Strengthen the Pedagogical Skills of IT Students in Implementing Merdeka Curriculum

The pattern of micro teaching activities in this study was compiled based on student learning activities in micro teaching courses. The pattern of learning activities is planned and arranged through semester lesson plans which are derived based on the Learning Outcome Program (PLO) and Course Learning Outcome (CLO) for this course. The semester lesson plan is divided into several material topics derived from CLO and literature studies. These topics are the concept of micro teaching, curriculum analysis, lesson plan analysis, analysis of basic teaching skills, development of lesson plans and learning media, and micro teaching practices.

This micro teaching pattern was carried out in the previous semester, in the Odd Semester of the 2022-2023 academic year. The learning model used in this course is blended learning. There were 4 meetings held online using a combination of the zoom meeting platform for explanation of material concepts and Elena's LMS for assignments. While the rest is carried out offline for explanation of material concepts combined with a combination of Elena's LMS for assignments.

Data was gathered from various sources, including documentation from the semester such as lesson plans, instructional media, and assessments of student performance during teaching practices. Additionally, data was obtained through direct observations conducted by researchers during student teaching practices, as well as through interviews capturing student responses following their teaching experiences. The specific details and pattern of the micro teaching activities planned and implemented in this study can be found in Table 2.

Table 2. The Pattern of Micro Teaching

No	Topics	Number of Meetings (4 Hours Each)
1	Concept of Micro Teaching	1 meeting
2	Curriculum analysis	2 meeting
3	Lesson plan analysis	4 meetings
4	Basic teaching skills	2 meetings
5	Developing learning resource	1 meeting
6	Micro teaching practice	6 meetings
7	Reflection	1 meeting

The lecture meeting begins with an explanation of the concept of micro teaching. The activities carried out at the first meeting were discussions and detailed explanations about micro teaching and lecture contracts for 1 semester, including the lesson evaluation plan.

The second topic of meeting was continued by providing debriefing on the curriculum. SMKs in Indonesia are simultaneously implementing the

independent curriculum starting in the 2022-2023 academic year. Based on interviews with a number of students, in the curriculum courses in the previous semester students were still not introduced to the Merdeka curriculum. There are significant differences in the curriculum structure and content standards in the independent curriculum when compared to the previous curriculum, so that curriculum deepening and explanation of the essence of the independent curriculum were carried out during 2 meetings, at the second and third meetings.

The analysis of lesson planning was the third topic discussed, spanning across 4 meetings. This emphasis was necessary to enhance several performance test indicators related to this subject matter. Additional materials were introduced to strengthen the development of lesson plans. These materials encompassed (1) an analysis of competency achievement indicators, learning objectives, and materials based on the chosen fundamental competencies; (2) an analysis of learning activities aligned with the selected instructional model; (3) an analysis of evaluation planning and the assessment of learning outcomes; and (4) an analysis of learning tools and media.

The fourth topic was basic teaching skills. Basic teaching skills are of utmost importance for educators, encompassing abilities such as effectively opening and concluding lessons, delivering clear explanations, skilfully posing questions, implementing instructional variations, providing reinforcement, managing classrooms, teaching small groups, and facilitating small group discussions.

Topic fifth is developing learning resources. The activities carried out by students are to make lesson plans, learning media, and learning evaluation instruments in accordance with the learning outcomes of the chosen SMK concentration.

The sixth topic was micro teaching practice had the highest frequency of meetings, with a total of 6 sessions. This is due to the practice of micro teaching naturally, where each student is allotted 30 minutes for practice, while other students assume the roles of observers and students at Vocational High School. After teaching practice there are reflections session that give some feedback from observer and lecturer about student's performance.

Micro teaching courses in one semester end with reflection activities by students on a series of activities ranging from planning to teaching practice that they have done. Reflection is carried out in writing by analyzing the strengths and weaknesses in implementing micro teaching learning and the solutions offered to reduce these weaknesses.

3.2. The Impact of Micro Teaching Patterns Activities on Students' Pedagogical Skills in Implementing Merdeka Curriculum

The impact of Micro Teaching on strengthening pedagogic skills is seen based on the indicators achieved using 3 assessment techniques, assignments to develop lesson plan, instructional media, and teaching practice performance tests. Lesson plan assignments are used to measure indicators of Learning design and planning and Evaluation of learning outcomes. Assignment of instructional media is used to measure indicators Understanding the characteristics of students and Learning design and planning. Micro learning practice performance tests are used to measure indicators of Understanding the characteristics of students, Implementation of learning, and Develop students to actualize their various potentials.

Data obtained from the assessment rubric with a Likert scale of 5. Value data were obtained from documentation, interviews, and observations of the performance of online micro teaching practices which were processed in such a way as to determine the success or achievement of pedagogic skill indicators. The results of the pedagogic skill assessment can be seen in Table 3.

Table 3. The Results of The Pedagogic Skills Assessment

No	Instrumen	Min Score	Max Score	Average
1	Developing lesson plan	77	97	88.17
2	Developing instructional media	79	97	90.39
3	Tes Performance of teaching practice	73	98	90.11
Rata-rata				89.56

The Results of The Pedagogic Skills Assessment shows that the average of the three instruments to measure pedagogic skills shows a very good score, namely 89.56. This shows that micro learning is the right course to develop pedagogic skills that are integrated with each component of TPACK. So, students can be more confident to teach in the classroom to face a variety of students. Debriefing and mentoring curriculum analysis and lesson planning also have a good impact because students are directed to make lesson plans and learning media in accordance with the needs of the SMK and the characteristics of the students. Careful lesson planning combined with basic teaching skills that have been trained makes students more confident in delivering material in front of the class.

From Table 3 it can be seen that the lowest score is at 73-79 for the three assessment instruments. This shows that there are still students who need to be trained in their pedagogical skills. The follow-up is to reflect by

asking students to do a SWOT analysis of the performance they have carried out for one semester and write down the follow-ups needed to improve their abilities. Thus, students become more prepared when carrying out internships at school.

4. CONCLUSIONS

This study provides several conclusions related to the implementation of online micro teaching:

1. The pattern of online micro teaching activities to strengthen pedagogical skills of IT Students in implementing Merdeka Curriculum is arranged based on CLO and topics in the semester's lesson plan. There are 7 sequential topics in this activity, that are concept of micro teaching, curriculum analysis, lesson planning analysis, basic teaching skills analysis, developing learning resources, microteaching practice, and reflection.
2. There was an impact of the micro teaching activity pattern on students' pedagogical skills in implementing the Independent Curriculum as indicated by an average pedagogical skill of 89.56%.

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