

## Development of a hybrid reflective micro learning model based on ICT in Micro Teaching courses

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### Abstract

This research aims to develop a hybrid reflective micro-teaching model. The research method used is a type of research and development referring to the Borg and Gall R&D Cycle. The research results from reflection sheets indicate that some students could perceive the teaching for themselves. This is evidenced by the correspondence between friend's assessments and the results of their reflections. However, some students seemed less attuned to what was being taught. Peer observations and reflection on students' learning indicate a promising potential for improvement in students' self-assessment. For instance, some students reflected "good" in planning and implementing materials but couldn't demonstrate their abilities accordingly. Limited trials of the Reflective Microteaching model indicate a tendency for students to respond positively to the model. Observations using various instruments also show an inclination toward better understanding and increased awareness of learning planning and implementation. Nonetheless, there are still discrepancies between reflection results and friends' observations.

**Keywords:** ICT in education; hybrid; micro teaching; reflective learning model

### Introduction

Teachers need to possess four core competencies, which are essential for prospective teachers in the Faculty of Teacher Training and Education (FKIP): professional competence,



pedagogical competence, social competence, and personality competence. These competencies, often referred to as 'core' because they are fundamental to the teaching profession, enable teachers to become proficient educators capable of fulfilling their responsibilities. A skilled teacher must excel in key abilities such as planning, implementing, and evaluating learning (Afriyani, 2013). These abilities are integral to the daily life of teachers in schools/madrasahs and form a connected system of interactions. Learning planning, in particular, is a critical competency that directly influences the implementation of learning (Asmadawati, 2014).

The implementation of learning runs smoothly, and learning evaluation can obtain maximum results if learning planning is carried out as well as possible because this stage is the primary function of the success of the following stages (Sholeh, 2017). For this reason, prospective teachers' pedagogical abilities must also be developed early, including in micro-learning. This course must be taken and passed by undergraduate students who are prospective teachers as preparation for practical field experience at schools/madrasahs in the following semester. Otsupius (2014) states that microteaching is a technique for training prospective teachers' teaching and learning abilities. This teaching uses real situations to develop skills. It helps gain more profound knowledge of the art of teaching with a significant reduction in teaching complexity concerning the number of students in the class, content coverage, and period. This learning has been known since the 1960s in educational circles to improve teachers' teaching experience (Koross, 2016). This finding is supported by the results of research Imran (2013) and Sadiq (2011), which state that the experiences of prospective teacher students during the micro-teaching period impact students' skills, especially when the entry of the era marks developments. Globalization requires students to be clever in all fields, including technology.

Technology is a necessity and must be present in the current learning process. The achievement of learning competence in the form of student competence in teaching in the classroom is considered not optimal, so it is necessary to try other types of learning models that also integrate ICT so that it can maximize student teaching skills (Herrera et al., 2018). One of the models offered and appropriate to use in facilitating students implementing microteaching is the reflective microlearning model. The development of the Reflective Microteaching learning model is based on learning as a system, which considers raw input components (undergraduate students who are taking Microteaching courses), environmental input (demands of the community environment, and developments in science and technology for teachers and undergraduates students), instrumental input (teacher education policy), then designing/designing and implementing the learning process (process) so that students are produced who have reflective abilities (output) (Indiati & Sumardiyani, 2010).

Furthermore, starting from the meaning of Reflective Teaching and Microteaching, a definition of *Reflective Microteaching* is the implementation of a microteaching process that tries to apply the principles of reflective teaching to help prospective teachers have reflective abilities to evaluate and improve actual teaching. In reflective practice, practitioners engage in a continuous cycle of self-observation and self-evaluation to understand their actions and the reactions they elicit in themselves and learners (Brookfield, 1995). The aim is not necessarily to answer specific problems or questions that have been defined at the outset, as in practitioner research, but to observe and improve practice in general or on an ongoing basis.

The stages carried out in the reflective micro-teaching model are expected to facilitate optimal implementation of teaching practices in the classroom. Previous research has been related to the reflective micro-teaching model. Research conducted by Rohana and Ningsih stated that the mathematical problem-solving and communication abilities of students who received the reflective learning model were better than those of students who received conventional learning (Rohana & Ningsih, 2018).

Research on reflective micro research has been carried out by many previous researchers, namely research from Ninsiana (2012), *Reflective Microteaching Approach in Improving the Quality, Competence and Professionalism of Prospective Teachers*. And the second research of

Imran (2023), entitled "Microteaching to improve teaching methods: Analysis of students. Perspective". Finally, there was research from Koross in 2016 entitled "Microteaching an efficient technique for learning effective teaching skills: pre-service teacher perspective."

The three studies above have similarities with this research in the form of applying the reflective micro-learning model in learning. However, the exciting difference lies in the courses that will be chosen, namely Microteaching courses. The next difference is that researchers try integrating hybrid learning by utilizing ICT. Hybrid learning is not just a learning model, but a dynamic approach that combines face-to-face teaching methods with offline and online computer-assisted teaching methods to form an integrated learning approach. Besides improving learning outcomes, hybrid learning-based learning is also useful for improving communication relationships in three learning modes: traditional classroom-based learning environments, hybrid environments, and fully online learning environments (Verawati & Desprayoga, 2019). In this research, reflective microteaching will be carried out in a hybrid manner by utilizing existing technology. This is intended to adapt to the rapid development of learning and technology, and it is hoped that the development of this model will maximize microlearning/microteaching.

## Method

Following the Borg and Gall R&D Cycle (in Sukmadinata, 2007), this type of research and development is centred around the students of the PPKn FKIP Unsri study program. These students, who are taking the Micro Learning Course in the odd semester 2023/2024, play a crucial role in the development of the ICT-based Hybrid Reflective Micro Learning Model.

The research process for developing an ICT-based Hybrid Reflective Micro-Learning Model is the First Preliminary Study (Potential Problems and Data Collection). This preliminary study was conducted to obtain initial information regarding the problems and collect data related to micro-teaching subjects. The first step is to carry out a needs analysis to obtain information about the problems or obstacles faced in the micro-teaching course. The next step is to identify the essential competencies and indicators of micro-teaching courses that will be developed in a learning model—second, Product Development (Product Design and Product Validation). The product development stage begins with a discussion of the results of the preliminary study, which will be used to test the reflective micro-teaching model. Next, a team of experts carries out the product validity test. Third, product testing (Trial, Product Revision, and Mass Production). This stage is carried out by implementing the teaching model that has been prepared. Observations were carried out during the trial to support improving the reflective micro-teaching model in the micro-teaching course. The results of these observations are then discussed as supporting data for the research. The trial was carried out in several stages: one trial, a small group trial, and a field evaluation. Textbook trials were carried out several times to produce a valid and practical reflective micro-learning model to improve students' skills in carrying out professional teaching practices.

## Result and Discussion

### Research Result

Reflective micro-teaching is typically undertaken by 5th-semester students, aimed at creating a reflective micro-teaching model to equip prospective teachers with the ability to reflect on their teaching practices in the future. This approach aims to make prospective teachers more critical and better able to reflect meaningfully, linking it to the development of teacher professionalism. The team is working on developing a micro-teaching model that encourages teacher candidates to engage in meaningful reflection. The model development and documentation process took place on October 30, 2023, involving five students majoring in Citizenship Education at FKIP, Sriwijaya University, who were enrolled in a micro-teaching course under the guidance of their instructor.

Data collection occurred during student teachers' basic teaching skills practice. Observations revealed consistent weaknesses in displaying certain teaching skills. For instance,

when students practised opening a lesson, there was no apparent use of visual aids, no delivery of learning indicators, and a lack of connection between learning components. Additionally, there needed to be more various interaction pattern subcomponents during practice, resulting in a low assessment of the interaction components in teaching. These findings indicate that the theoretical knowledge students acquire does not lead to significant changes or improvements in their teaching abilities.

Based on the explanation above, it is stated that it is necessary to develop a teaching model called the Reflective Microteaching model. The main objective of the Reflective Microteaching model is to improve the quality of teaching by developing basic teaching skills in a microteaching context that develops the reflective skills of prospective teacher students. Determining the model development strategy includes determining the delivery strategy, organizing strategy, management strategy, and support system. Determining a model development strategy is necessary so that the model has specific characteristics. In this Reflective Microteaching model, students engage in a continuous cycle of practice, observation, and evaluation of teaching practices to understand their teaching strengths and weaknesses.

The Reflective Microteaching learning model was planned and developed through a limited trial conducted from August to November 2023. The trial took place in the undergraduate program specializing in citizenship education, where students enrolled in microteaching courses taught by research team members. This trial included a simulated implementation of Reflective Microteaching learning practices to test the model's design and the Reflective Microteaching guidebook. Each stage of the Reflective Microteaching cycle will be further explained.

#### 1. Create a learning plan and rationale.

Learning plans are the main requirement in microteaching programs. However, the learning plan given to students in this research is a learning plan along with the reasons for each activity that has been designed. For example, suppose the teacher starts the lesson by showing a poster about corruption. In that case, the reason behind this activity is to attract students' attention and, at the same time, make the poster a medium for arriving at the lesson material. Suppose the teacher asks students to work in groups. In that case, the teacher must explain why he is doing group work, not individual work.

#### 2. Micro teaching recording

This Microteaching activity is carried out in a multimedia laboratory equipped with 2 (three) pairs of cameras. Microteaching carried out by five students was recorded without exception. This recording facilitates the reflection process, namely being played back when students fill in the reflection sheet. After being recorded using a camera, the results are processed using Pinnacle software to make viewing easier.

#### 3. Playback of microteaching recordings

The recording that the operator had tidied up was played back a few minutes after all the students had finished doing the microteaching practice. The playback of this recording is intended to help students complete peer assessment sheets and fill-in reflection sheets.

#### 4. Assessment by friends (peer assessment)

Each student is given an observation sheet, namely APKG (Teacher Ability Assessment Tool). This assessment instrument contains several indicators of teacher competency, such as skills in opening lessons, delivery, learning interactions, mastery of material, verbal abilities, non-verbal abilities, use of time, and skills in closing lessons.

Following the peer assessment results, it is evident that comprehension of the material to be presented varies among students. Ratings indicate that in terms of planning, utilizing learning resources and teaching media, managing the class, and assessing learning processes and outcomes, there is room for improvement in teaching skills. To address this, a re-

assessment was conducted on November 2, 2023, for 5 students who had carried out microteaching activities.

Table 1.  
*Result of the Student Test*

No	Component	Score											
		1	2	3	4	5	6	7	8	9	10	11	12
1.	Mastery of material	1	2	2	-	-	-	-	-	-	-	-	-
2.	Planning	-	1	1	3	-	-	-	-	-	-	-	-
3.	Utilization of learning resources and media	-	-	-	3	2	-	-	-	-	-	-	-
4.	Classroom management	-	1	-	-	2	2	-	-	-	-	-	-
5.	Evaluation	-	-	2	-	-	1	1	1	-	-	-	-

Source: Research Data, 2023.

The goal of this assessment was to create a collaborative learning environment where students can enhance their teaching practices through valuable input and suggestions from both lecturers and colleagues. Reflection sheets are being utilized to encourage students to reflect on the teaching and learning processes they have designed and practiced.

Table 2.  
*The Data Collected Using The Reflection*

No	Component	Score											
		1	2	3	4	5	6	7	8	9	10	11	12
1.	Mastery of material	-	-	-	-	-	-	-	-	1	1	3	-
2.	Planning	-	-	-	-	-	-	-	-	-	2	-	3
3.	Utilization of learning resources and media	-	-	-	-	-	-	-	-	-	-	2	3
4.	Classroom management	-	-	-	-	-	-	-	1	1	1	2	-
5.	Evaluation	-	-	-	-	-	-	-	-	1	2	2	-

Source: Research Data, 2023.

When it comes to grasping the presented material, we have 2 students who have shown commendable progress and 3 students who have excelled. In terms of material planning and execution, we have 2 students who have demonstrated their ability to plan and execute the material effectively, and 3 students who have done exceptionally well. In the area of planning and utilization of learning resources and teaching media, we have 5 students who have shown outstanding performance. In terms of class management, we have 1 student in the fair category, 2 students in the good category, and 2 students in the very good category. In the aspect of assessing learning processes and outcomes, we have 3 students in the good category, and 2 students in the very good category.

From the reflection sheets, which were collected and analyzed by [specific method or tool], information was obtained that some students were able to 'see' their own teaching. This is shown by the existence of a match between friends' judgments and the results of their reflections. Meanwhile, others seemed 'less sensitive' to what they had done. Exposure to data obtained from friends' observations and reflections on learning carried out by students shows that there is a tendency towards the same assessment, namely in the range of fair and good, however, there are still differences in the results of observations which show that students' self-assessments are better. For example, there are students who reflect "good" in the section on planning material and its implementation, but in reality these students cannot demonstrate this ability in the good category.



The results of limited trials of the Reflective Microteaching model show a tendency for students to respond positively to the use of this model. From the results of observations using various instruments, such as [specific instruments], it shows that there is a tendency for understanding and increasing awareness of each learning planning action and its implementation. However, there were still discrepancies between the reflection results and friends' observations.

## Discussion

Micro-teaching stands as a transformative training model meticulously crafted to elevate the foundational teaching abilities of educators through streamlined methods in terms of time, materials, and class size. Aspiring teachers typically engage in micro-teaching, involving role swapping to master basic teaching skills, engage in learning activities, and address encountered challenges. Originating from Stanford University in the United States in 1963, micro-learning serves as an instrumental method to enhance the proficiency of educational professionals and enrich their professional journey.

Micro-teaching catalyzes innovative teaching and learning experiences and as a tool for educators to refresh their skills and receive valuable feedback on their teaching performance. Through micro-learning, aspiring and experienced educators gain insights into their teaching strengths and weaknesses, enabling them to leverage their advantages and address deficiencies. Furthermore, micro-learning offers a secure environment for educators to experiment with new learning methods or models before implementing them in actual classrooms, instilling confidence in their teaching capabilities.

According to Helmiati (2013), microlearning functions to develop prospective teachers/educational personnel through cognitive, psychomotor, reactive, and interactive skills. The functions of micro learning or microteaching are as follows:

1. Instructional function as a provider of practical training facilities for prospective teachers to practice and, refine and enhance learning skills as well as practice applying knowledge of teaching methods and techniques and teacher science that have been studied theoretically. Microteaching functions as teacher practice, both in pre-service and in-service. With this, it is clear that the instructional function is a place to hone teaching competencies and skills.
2. Coaching functions as a place for guidance and provision for prospective teachers before they dive into actual teaching. Micro learning is used as a place to equip prospective teachers by improving teaching components before going into the classroom where they are taught.
3. Integralistic Function, as a program that is an integral part of the field experience program is, a PPL prerequisite course and has the status of a real mandatory course.
4. Experimental function, as testing material for prospective expert teachers in the field of learning. For example, a teacher based on his research finds a learning model, so before the discovery is put into practice in the field, it is first tested in micro learning. With this, the results can be evaluated to determine where the weaknesses lie so that improvements can be made immediately. In other words, the function of microlearning is a means of practising teaching and is also one of the requirements for students who will take part in teaching practice in the field.
5. Be sensitive to phenomena in the learning process when being a collaborator who criticizes friends who perform teaching practices.
6. Be more prepared to carry out teaching practice activities in institutions and schools.
7. They can assess their deficiencies related to essential teaching competencies through self-reflection after future practice.
8. Be aware of how to form a good educator profile regarding appearance, attitude and behavior competencies. Through micro-learning, a prospective educator will have a high

sense of self-confidence because he has been well trained and equipped with competency after competency, both separately and integrated into a single learning process.

Micro-teaching serves as a valuable practical experience for aspiring teachers. It involves focused practice on specific skills. According to Hasibuan et al., (2014), the objectives of microlearning are as follows:

1. Assisting prospective teachers in mastering essential skills to prevent difficulties during training.
2. Gradually enhancing teaching competency among prospective teachers by integrating mastered skills into actual teaching.
3. Helping in-service teachers or lecturers identify their teaching deficiencies and work on improving them.
4. Offering micro learning exercises to enable teachers to master teaching skills, ensuring steady, skilled, and competent performance in the teaching and learning process.
5. Supporting the enhancement of prospective teachers' skills, abilities, and effectiveness in the teaching and learning process.

#### Stage I (Cognitive)

In the first stage, prospective or practicing student teachers are guided to understand and deepen and have a general idea of the concept and meaning of basic teaching skills in the teaching and learning process, using them appropriately, synergizing one skill with another as well as accuracy when and under what conditions one skill and another. Ideally used at this stage, prospective teachers, apart from being introduced to theoretical concepts, must also see examples of the practical application of the theory through video shows of the application of the theory. In this way, prospective or practicing teacher students can synergize their knowledge for use in the reality of teaching combined with basic teaching skills.

#### Stage II (Implementation)

In this second stage, prospective or practical student teachers actually practice basic teaching skills repeatedly, with the hope that if they practice repeatedly, they will find out their shortcomings in the skills they are learning to master and be skilled at using them in the teaching and learning process. At this stage, practice can prepare learning tools starting from lesson plans, the media that will be used and everything that is required for professional teachers in the future.

#### Stage III (Return)

This third stage is a practical flashback by studying the results of peer observations which will provide information after seeing directly the implementation of teaching practice activities. Colleagues and supervisors or extraordinary lecturers will provide assessments regarding the advantages and disadvantages of practice which will then be discussed and used as material to improve performance as prospective professional teachers.

#### Learning Steps

##### 1. Initial activity Opening

In the K-13 Curriculum the first step a teacher must take is an opening. The opening referred to is giving greetings, inviting students to pray together, giving appreciation, providing an introduction to the material, and providing initial motivation. This aims to ensure that students have an idea of what material will be presented, and students will also be better prepared and feel comfortable in the learning process.

##### 2. Core activities

###### a. Observing (Observe)

Observing is the initial process of a series of student-centered learning stages. In this process of observing, it is hoped that you will be trained in seriousness and thoroughness in searching for information. In observing activities, the teacher opens up wide and varied opportunities for students to make observations through viewing, listening, listening and reading activities that are formulated in learning process scenarios. Teachers facilitate students to make observations, train them to pay attention (see, read, hear) the important things about an object or thing (Permendikbud No. 81a 2013).

Examples of observation activities that can be carried out are as follows:

- Read sources from student books
- Listen to poetry readings or narratives
- View video shows
- View demonstrations

#### b. Questioning (Asking)

Questioning trains students to develop creativity, curiosity, self-confidence, the ability to formulate questions to form critical thinking that is necessary for intelligent living and lifelong learning. In questioning activities, the teacher opens up wide opportunities for students to ask questions about facts, concepts, principles or procedures that have been seen, listened to, read or seen. Teachers need to guide students to be able to ask or ask questions: Questions about the results of observations of concrete objects to abstract ones regarding facts, concepts, procedures, or other abstract things. Students must be trained to be able to ask questions from factual to hypothetical questions. From a situation where students are trained to use questions from the teacher, they still need the teacher's help to ask questions to the level where students are able to ask questions independently. (Permendikbud No. 81a of 2013). Examples of questions that can be done by students include:

- Students ask for additional explanations of the information obtained from the observing process.
- Students seek additional explanations on their own based on information from the results of observing activities.
- Students ask about phenomena they don't know about in the step of observing objects
- Students clarify the information they get from the observing stage.

#### c. Experimenting (Trying)

Collecting information trains students to develop thorough, honest, polite attitudes, respect other people's opinions, communication skills, apply the ability to collect information through various learned methods, develop learning habits and lifelong learning (Permendikbud No. 81a Th. 2013). Examples of what you can try:

- Students carry out experiments
- Students read sources other than textbooks
- Students observe objects/events/activities
- Students interview sources
- Students access the internet
- Students collect data through questionnaires/questionnaires

#### d. Associating (Reasoning)

Associating is an activity of processing information that is able to train students to develop honest, thorough, disciplined, rule-abiding attitudes, hard work, the ability to apply procedures and the ability to think inductively and deductively in drawing conclusions.



- Reasoning activities can be carried out with the following steps:
- Process the information that has been collected
- Analyze data in the form of creating categories
- Associate or connect related phenomena/information in order to discover
- processing information that has been collected, whether consisting of the results of collecting/experimental activities or the results of observing activities and information gathering activities
- Processing information collected from adding breadth and depth to processing information that seeks solutions from various sources that have different to conflicting opinions.
- This information becomes the basis for the next activity, namely processing information to find the relationship between one piece of information and other information, finding patterns from the relationship of information and even drawing various conclusions from the patterns found.

e. Creating Networking Communication Implementating

Communicating can train students to develop honest, thorough, tolerant attitudes, the ability to think systematically, express opinions briefly and clearly, and develop good and correct language skills. Learning activities carried out at the communicating stage are conveying the results of observations, conclusions based on the results of the analysis orally, in writing or other media. Examples of communication activities are as follows:

- Present reports in graphical form
- Present reports in diagram form
- Present reports in graphical form
- Prepare written reports

Present reports including processes, results and conclusions verbally, graphically and multimedia.

Hybrid Learning is a mathematical learning methodology approach developed by Guillermo and friends in 1999 at Tecnica Federico Santa Maria Valpariso University, Chile. Hybrid Learning is a combination of several methods related to the way students adopt concepts. Hybrid Learning is methodological learning that combines several learning methods, namely:

1. Traditional Class (TC) is learning carried out in a traditional/expository manner
2. Real Workshop (RW), namely learning using computers as a tool, and
3. Virtual Workshop (VW), namely learning using the internet.

Hybrid Learning aims to provide the most effective and efficient experience by combining conventional or face-to-face meetings in the classroom with integrated e-Learning environment management, namely Traditional Class-Real Workshop-Virtual Workshop (TC-RW-VW).

Melton et al. Al. (2009:1) states that Hybrid Learning is a combination of classroom learning and online learning without eliminating face-to-face learning. Hybrid Learning really helps lecturers in the teaching and learning process and can improve student learning achievement. Syarif (2012:234) concluded that "there was a significant increase in student motivation and learning achievement as a result of Hybrid Learning". Researchers provide evidence showing that Hybrid Learning produces a stronger feeling of community among students than traditional learning (Rovai and Jordan, 2004). Rivai, Veithzal, Murni, and Sylviana

(2009) concluded that Hybrid Learning improves learning outcomes to a greater extent than conventional learning.

Hybrid Learning is the best choice to increase effectiveness, efficiency and greater attractiveness in interacting between people in diverse learning environments. Hybrid Learning offers the opportunity to learn both together and separately, as well as at the same time or at different times

## Conclusion

The analysis of the collected reflection sheets revealed that some students demonstrated accurate self-assessment by aligning their own reflections with their friends' judgments. Conversely, some students showed less insight into their own performance. The data analysis indicated consistent fair and good evaluations from both self-assessments and friend observations, but discrepancies still existed. For example, some students rated their planning and implementation skills as "good" in their reflections, though their actual performance did not support this rating. Initial trials of the Reflective Microteaching model received positive feedback from students. Although different observation methods indicated an overall trend toward increased understanding and awareness of teaching actions, inconsistencies between self-reflections and friend observations still persisted.

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