

# Microteaching Management During The Covid-19 Pandemic in Mathematics Education Study Program, Universitas Kristen Indonesia

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## ABSTRACT

*This study aims to describe the microteaching management of Mathematics prospective teachers during the Covid-19 pandemic. This study uses a qualitative approach. The research subjects were 18 students with a purposive sampling technique. Data collection techniques through observation during online microteaching practices and questionnaires filled out by students using Microsoft Office 365 Form. Observations using the observation questionnaire. The data obtained was validated by the expert with FGD. Data analysis uses descriptive statistics. The results showed microteaching management: (a) Study program has microteaching standards; (b) All volunteers have mastered Microsoft Office 365 Teams technology, are confident and have professional teaching skills; (c) the lecturer reviews the practitioner based on indicators; (d) control is carried out with feedback, always showing room for improvement; and (e) students who have excellent practice results are still given enrichment.*

## Keywords

management, online microteaching.

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## Introduction

Today the world is shocked by the Covid 19 pandemic, including Indonesia. Covid pandemic 19 impacts all fields and includes education. In March 2020, it suddenly made policies by learning from home (home learning) and working from home (working from home). It was not unthinkable to us that the government issued a health policy and protocol. Health needs to be maintained, and learning continues. Communities in carrying out daily activities follow government protocol. This condition forces the learning strategy to adjust the requirements using technology, including microteaching, which has been carried out in class but must change using technology.

The Mathematics Education Study Program of the Faculty of Teacher Training and Education Indonesian Christian University aims to produce competent and competent graduates. This means that graduates of the Mathematics Education Study Program become prospective teachers who have Indonesian Christian University attitudes and values, knowledge, general skills, and special skills

under the Level 6 Study Program Curriculum, which refers to the Indonesian National Qualification Framework (Presidential Regulation of President Number 8 the Year 2012).

Based on Law of Republic Indonesia Number 14 the Year 2005 concerning teachers and lecturers, article 8 states that teachers must have a minimum D4 or undergraduate academic qualifications, competencies, educator certificates, physically and mentally healthy to realize the goals of national education. The purpose of national education in article 3 "the pursuit of national education is to develop the potential of students to become human beings who believe in and fear God Almighty, have noble, healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens (Law of Republic Indonesia Number 20 the Year 2003). Teacher competencies include pedagogical competencies, personality competencies, social competencies, and professional competencies (Sihotang, H., 2020).

Based on Regulation of Government Number 74 the Year 2008 concerning teachers, There were four teacher competencies described in table 1.

Table 1. Type of competency an indicator of teacher competency

Type of competency	Indicator
Pedagogical competence	<ol style="list-style-type: none"> <li>1. Mastering students' characteristics from physical, moral, spiritual, social, cultural, emotional, and intellectual aspects</li> <li>2. Identifying the potential of students in the subjects they teach</li> <li>3. Identifying the initial ability of students in the subjects being taught</li> <li>4. Identifying students' learning difficulties in the subjects being taught</li> <li>5. Mastering learning theory and learning principles that educate</li> <li>6. Understanding various learning theories and principles of learning that education related to the subjects being taught</li> <li>7. Applying various approaches, strategies, methods, and learning techniques that educate creatively in the subjects being taught</li> <li>8. They are developing indicators and assessment instruments.</li> </ol>
Personal Competency	<ol style="list-style-type: none"> <li>1. Present yourself as a stable and stable person</li> <li>2. Present themselves as individuals who are mature, wise, and authoritative</li> </ol>

	<ol style="list-style-type: none"> <li>3. Demonstrates work ethic</li> <li>4. High responsibility</li> <li>5. A sense of pride in being a teacher and confident</li> <li>6. Behave honestly, decisively, and humanely</li> <li>7. Uphold the professional code of ethics.</li> </ol>
Social Competency	<ol style="list-style-type: none"> <li>1. Communicate politely</li> <li>2. Associate effectively with students, fellow educators, parents/guardians, and the wider community</li> <li>3. Heed the prevailing community norms</li> <li>4. Adapt to culture, society, and so on</li> </ol>
Professional Competency	<ol style="list-style-type: none"> <li>1. Understand teaching material available in the school curriculum</li> <li>2. Understanding the structure, concepts, and scientific methods that overshadow or be coherent with teaching material</li> <li>3. Understand the relationship of concepts between related subjects</li> <li>4. Applying scientific concepts in everyday life</li> <li>5. Mastering the steps of research and critical study to add insight and deepen the knowledge/material in the field of study.</li> </ol>

Based on table 1, it can be concluded that pedagogical competence is teacher competency in general for each teacher, which is making teaching preparation, implementing learning with appropriate learning methods, and evaluating knowledge. Personality competence is closer to the affective competence of the teacher. Social competence is related to the ability of teachers in

the community as part of the community. Teacher professional competence is required to work more optimally in preparing students to face the changing times that continue to develop. This professional competence is the task's ability and authority that the teacher must carry out in his teaching profession. Experienced competence masters scientific substance related to the field of study.

Based on the study results (Boz, Yezdan: Belge-Can, Hatice., 2020; Juhler, MV, 2016; Kartal, T., Yamak, H., & Kavak, N., 2017) show that knowledge of teacher pedagogical competencies is not evenly distributed in each component. Every teacher is expected to have each pedagogic piece that is mastering students' characteristics, can plan to learn, carry out learning, and assess learning outcomes (Lucenario, J.L.S., Yangco, R.T., Punzalan, A.E., & Espinosa, A.A., 2016). Other research results show that microteaching products are the readiness of professional knowledge and professional mathematics teaching skills (Merliza, P., Loviana, S., & Winata, B. B., 2020). Therefore, it is increasingly encouraging that there is no reason for lecturers to truly guide students to compete in the job market to become professional teachers later.

The Faculty of Teacher Training and Education in the Indonesian Christian University as the unit of management of Mathematics Education Study Program seeks to ensure that each Faculty of Teacher Training and Education graduate is competent in his field, then given the Microteaching course with a weight of 4 credit point. Students are equipped to make lesson plans in the micro teaching-learning process, training ten teaching skills that lead to practical teaching skills, in line with the results of microteaching research given to bridge the gap between the ability of beginner teachers with real conditions (Ledger, S., & Fischetti, J., 2020; Impedovo, M. A., & Khatoon Malik, S., 2016). In this research, it is discussed microteaching era 2.0 in the classroom. Whereas

now it is in the 4.0 age where prospective teachers must be equipped with the online digital era (Dieker, LA, Lignugaris-Kraft, B., Hynes, M., & Huges, CE, 2016; Ersozlu, Z., Ledger, S., Mayne, F., & Wildy, H., 2019). Besides providing knowledge and skills, they are also accompanied by personal and social competencies for students.

The results of Microteaching research are a prerequisite for attending the field experience course. In Mathematics Education Study Program for two months of lectures in class. But no one expected a Covid 19 pandemic, so the method was changed online. Because the change from offline to online is sudden and has not been prepared in advance, lectures are inevitably offline. Indonesian Christian University has prepared MS Office 365. Students who live in boarding houses during the Covid 19 pandemic choose to return to their parents' homes. Students experience obstacles, including constraints on preparing or buying an internet quota, signal constraints that are lacking. Since students cannot attend lectures through TEAMS, those who experience a signal do their teaching practice by recording with the consideration of not harming students.

Previous studies conducted with videotapes of teaching practice positively contribute to the subject matter knowledge, learner knowledge, knowledge representation, and pedagogical content knowledge. However, participants' lack of understanding of subject matter limits the effects of this practice. Implement microteaching study by considering prospective teachers' qualifications related to subject matter knowledge suggested for science teacher education programs (Bahçivan, E., 2017; Carlson, J., & Daehler, K.R., 2019). In this regard, the research was carried out in the Mathematics study program. Practice teaching experience is carried out in middle and high schools for three months to six months (one semester).

Previous microteaching research was conducted in the classroom to turn around prospective teachers to become teachers in schools. But at the moment, the impact of the Covid 19 pandemic does not allow the practice of microteaching in the classroom. Besides that, the microteaching course is in the sixth semester. It is a prerequisite for practice teaching experience to be carried out using the online method not to disadvantage students to graduate on time (Natalia, S., & Ditasona, C. (2019). Based on this, it is crucial and urgent to research microteaching management online so that graduates of Mathematics Education Study Program can own competency as a teacher.

### Methods

The study aims to determine the management of microteaching in the Mathematics Education Study Program during the 19th pandemic online whether it can achieve learning objectives. The study was conducted in the even semester of FY 2019/2020, starting on February 6 - June 29, 2020.

Research with a qualitative approach (Cresswell, 2007). Respondents were 18 students using the purposive sampling technique. The focus of research is microteaching management, and the sub-focus of research is planning, implementation, evaluation, control, and improving the quality of microteaching standards. Quantitative data obtained from direct observation of students because researchers and lecturers are supporting Microteaching courses. Words using observation instruments (Aydın, S., Demirdöğen, B., Tarkın, A., Kutucu, S., Ekiz, B., Akın, F.N., Tüysüz, M., & Uzuntiryaki, E.:2013). The practice of microteaching is held every Tuesday from 8.20 to 11.40, observing four practitioners. Observations of e-learning using instruments (Hung, Chou, Chen, and Own, 2010) observations with ten teaching skills indicators. Besides the data obtained through mechanisms that are circulated to respondents through the MS Form. The data

collected was validated by experts (Cooke, R. M., Marti, D., & Mazzuchi, T., 2019). Data collected were analyzed descriptively based on sub-focus and research indicators.

### Results and Discussions

They were based on the results of data analysis through observations during the practice of microteaching of 18 students. The results of observations of microteaching practices are described based on microteaching management. Based on Bin Lie's research results (2018), microteaching management is based on the teacher-instructed learning model, the self-learning model, and the collaborative learning model. Utami, I. W. P. (2016) states that microteaching management models have stages of planning, teaching implementation, reflection, and feedback stages. In this research, microteaching management refers to the implementation model of the internal quality assurance system at the Indonesian Christian University, including the activities of (a) setting of standards; (b) implementation of standards; (c) evaluating the implementation of measures; (d) controlling the implementation of standards; and (e) improvement of Standards (Regulation of the Minister of Research, Technology, and Higher Education Number 62 the Year 2016; Sihotang, H. 2020). Selection of model to be in line with the Ministry of Education and Culture and National higher education accreditation agency

National accreditation of higher education agency policy models ensures higher education quality in Indonesia (Regulation of the Minister of Education and Culture No. 5 the Year 2020). The microteaching quality assurance process is shown in Figure 1.

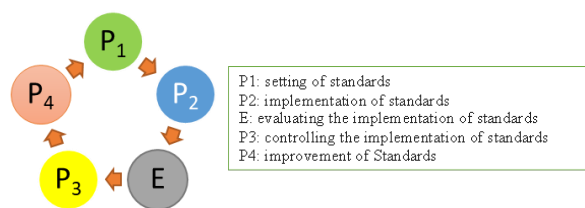


Figure 1. Microteaching management inline with Internal Quality Assurance System implementation.

### The Setting of Microteaching Standards.

Microteaching standards are formulated by a team of lecturers who are in charge of Microteaching courses. Microteaching standards are as follows: (1) preservice teachers have made lesson plans under the provisions. (2) preservice teachers have been guided and trained for ten teaching skills; (3) preservice teachers practice dressing neatly under the conditions of the practice; (4) preservice teachers must attend 15 minutes before the course begins (offline or online) if online must open the camera and be present until the end of the session; (5) At the end of the practice the lecturer submits a review during each student; (6) preservice teachers pass the practicum if the final grade is at least Good (Sihotang, H & Simorangkir, S, 2020 in the Indonesian edition and translated into English).

### Implementation of Microteaching

Microteaching is a course with a weight of 4 credit points supported by a team of lecturers who have the qualifications and capabilities. The implementation of microteaching is under the learning implementation plan. It is carried out for 16 weeks under the standard curriculum learning process disrupting Indonesia's national qualifications framework (Regulation of the Minister of Education and Culture Number 3 the Year 2020). The implementation is divided into three stages with an input-process-output system approach.

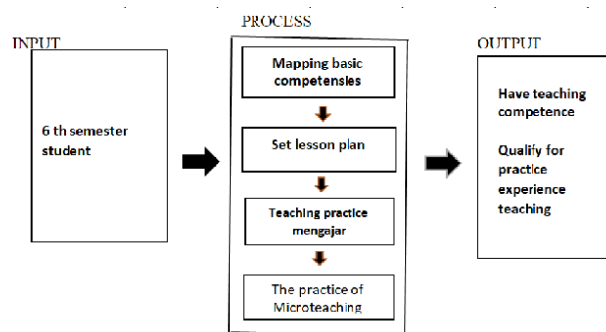


Figure 2. Microteaching Procedure

The tutorial class's first step is to review the concepts of planning and learning strategies and guide students to develop lesson plans. The implementation plan studied was High School Mathematics majoring in Natural Sciences class X and class XI. Class XII is not the target of practice because it does not consider that class XII will face practical tests, school exams, and national exams. How to divide the Basic Competencies of each student by dividing two groups of students, namely group 1 consisting of eight people dividing the number of necessary competencies in Mathematics grade X class and group two consisting of eight separating several essential competencies in mathematics material XI. The distribution of material by sampling is that each student takes a number that contains the necessary competencies. For two weeks, students are guided by a team of lecturers to make a complete learning implementation plan and equipped with a simple one-page learning implementation plan according to the free learning policy by the Ministry of Education and Culture 2020.

The second step guides the implementation of basic teaching skills training so that teaching practice can be useful. There were ten teaching skills observed, including (1) open learning skills; (2) explaining skills; (3) variation skills; (4) questioning skills; (5) skills to guide group discussions; (6) small group and individual teaching skills; (7) strengthening skills; (8) classroom management skills; (9) skills in using media/tools; (10) closing learning skills (Sihotang, H, and Simorangkir, S, .2020). Microteaching is necessary for prospective teachers to provide teaching skills (Kumar, SS,

2016; Apling, M., & Haryani, S., 2019; Griffiths, J., 2016; Sugihartini, N., Sindu, GP, Dewi, KS, Zakariah, M., & Sudira, P., 2020).

Based on observations while carrying out the micro-teaching practice of 18 people based on ten students' teaching skills, the preservice teacher described as follows.

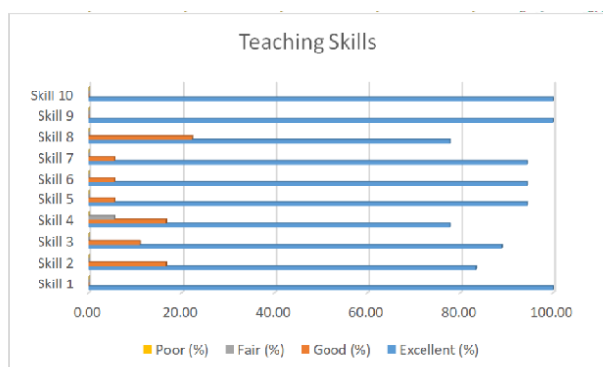


Figure 3. Many prospective preservice teachers based on teaching skills

Open learning skills. All preservice teachers have excellent open learning skills. Practice entering the classroom by smiling, greeting students (peers), checking attendance, initiating learning by praying, motivating students to be ready to learn, and conveying teaching objectives.

Explaining skills. There were 15 out of 18 (83.33%) that had been skilled at explaining the material very well, and 16.67% good. The skills presented in this study are the skills to use language that is easy to understand, varying intonation of sounds, looking at students friendly, and putting pressure on certain vital material parts. Some of the preservice teachers are accustomed to teaching as private teachers. There are also teachers in tutoring to no more extended challenge to explain mathematical material for 16.67% who experienced the explanation because the material was considered difficult the material limit and function, Trigonometry function.

Skills for teaching variations. There were 16 out of 18 (88.88%) who practiced were skilled at doing

excellent teaching variations and 11.12% good. The intended teaching variations are variations of the learning model, variations in intonation, variations in interaction, variations in performance, and variations in media and teaching aids used. The learning model used is the inquiry-based learning model, the problem-based learning model, and the project-based learning model: variations intonation, interaction, and teaching performance according to the level of material difficulty and student ability. Students have no problem using the Microsoft Office 365 learning media provided by Indonesian Christian University. In line with the results of research when using technology experiences a shift in mathematical knowledge from procedural to conceptual needed in future learning (Cavin, R., 2008; Kartal, T., Ozturk, N., & Ekici, G., 2012; Zhou, G., Xu, J., & Martinovic, D., 2016). Two preservice teachers have difficulty, namely one student because of the covid pandemic 16, so the campus college online policy for three months, so they choose to go home to parents in the area. In the regions, it turns out that the internet signal is unstable. It is impossible to practice with Microsoft office 365, so the preservice teacher provides an alternative to be recorded on video by meeting the stipulated standards. One practitioner of the other economic difficulties living with families affected covid 19. The campus has helped reduce education costs and extend payments, and not be fined for lowering students' burden.

They were questioning skills. There were 14 out of 18 (77.77%) were skilled in asking students well. It means the preservice teacher give questions according to the theme, look at students and ask questions coherently and steadily. Whereas 22.23% of students still experience difficulties. The question sentences given are sometimes not understood by students, so that the student is considered a student like studying in class.

Skills to guide the discussion. There are 94% of a skilled preservice teacher giving excellent reinforcement, 5.56% good. Each group consists of

3-4 people randomly. Each group was allowed to express their opinions, and all members were actively involved.

**Individual teaching skills.** There are 94% of skilled students giving excellent reinforcement, 5.56% good. There are times when learning requires individual assignments to find out the strengths and weaknesses of each student. The aim is to ensure that all students have personally achieved the learning objectives.

**Provide reinforcement skills.** There are 94% of skilled preservice teachers giving excellent reinforcement, 5.56% good. Support is the preservice teacher's response to student learning behavior that is considered useful to improve behavior.

**Class management skills.** 14 out of 18 (77.77%) are already skilled in managing the class very well, and 22.23% are acceptable. Class management skills are being fair to students, responsive and enthusiastic about teaching, providing rules for the learning process, and being rebuked educatively. Discipline is not nervous about giving questions according to the theme, looking at students, and asking questions coherently and steadily. During teaching practice still found reprimanding students by joking because sometimes it is still considered a classmate.

**They were using media/tools skills.** In this section, all students use powerpoint to explain learning material because of the learning media of MS Teams. Using technology increases self-confidence (Dixon, R. A., Hall, C., & Shawon, F., 2019). The research findings of Azrai, E. P., Rini, D. S., & Suryanda, A. (2020) still lack self-confidence and worry if teaching practices are direct in the classroom. In addition to Powerpoint, some preservice teachers have recorded peer learning teaching practices in videos (Shaw, D., 2017; Harding, J., Hbaci, I., Hamilton, B., & Loyd,

S., 2020). Recordings are sent to files in MS Teams and one drive.

**Close learning skills.** All preservice teachers have been able to close the learning well. Activities to close education include guiding students to resume learning, giving feedback to students, giving appreciation, and closing learning by praying.

## Evaluation

Microteaching activities need to be criticized for providing input (Erlinda, R., & Ethics, C., 2020). Every programmed activity must be evaluated. Evaluation of the implementation of microteaching is done at the end of the micro-teaching practice. Each practitioner is reviewed and notified of every indicator that has been achieved very well and well. Besides, hands that are still lacking convey what is lacking and how to improve. In line with Reddy, K. R. (2019), microteaching needs to be reviewed, discussed, evaluated and given feedback to enhance teaching competencies for prospective teachers (Reddy, K. R., 2019; Fernandez, M. L., & Robinson, M., 2006)

## Control

The form of control implemented is to provide feedback (Suzanne, N., Anita, R., & Azizah, R. N., 2020). Feedback is a strategic way to improve teaching performance. Each skill indicator is given input so that the excellent performance indicators are maintained, and good hands still have room for improvement to be perfect. For indicators that are still lacking, lecturers guide and provide opportunities to improve until it is ensured that all practitioners meet and exceed the standards for achieving microteaching results.

## Quality Improvement

Preservice teachers who have passed microteaching will follow the teaching experience tactics at the Indonesian Christian University's collaboration school. Based on observations from

preservice teachers who have demonstrated excellent or effective microteaching performance (Aji, S. D., Hudha, M. N., Huda, C., Nandiyanto, A. B. D., & Abdullah, A. G., 2018; Wangchuk, S., 2019). Microteaching aims to prove the effectiveness of teaching for prospective teachers (Willems, I., & Van den Bossche, P., 2019, Yerdelen, S., Osmanoglu, A., & Tas, Y., 2019). For the preservice teachers who have shown outstanding performance, enrichment is given to maintain and continuously improve competence. Not satisfied with current achievements but continues to be enhanced sustainably so that it can precisely place teaching practices (Cajkler, W., Wood, P., Norton, J., & Pedder, D., 2013)

### Conclusion

Based on observations during the micro-teaching practice, prospective teachers already have teaching skills, mastering teaching technology, and confident online teaching practices. Microteaching management in Mathematics Education study program refers to the model of implementing a quality assurance system, indicated by (1) The study program has microteaching standards as outlined in the microteaching manual; (2) students already have good teaching skills, (3) lecturers conduct microteaching evaluations based on developed instruments that contain ten teaching skills; (4) the form of control by conveying the indicators that have been achieved and the indicators that still have room for improvement and indicator improvement strategies; and (5) the improvement of standards is made by reinforcing for the practitioner to maintain and improve their abilities so that they can follow the practice of teaching experience in bona fide schools.

### Suggestion

The study results need to develop microteaching guides in regular (offline) classes and blended learning microteaching and/or online directories.

This is based on the experience of the covid pandemic 19, which forced online. Researchers suggest a better practice of microteaching in regular classes offline because preservice teachers are freer to show creativity in teaching, using media and education aids to achieve learning objectives. Besides, lecturers can observe the appearance, practice behavior during instruction more closely, and respond well without any signal constraints that are sometimes unstable.

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