

Mathematics Teaching Practicum For Junior High School in A Different Culture-Based Situation

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ABSTRACT

This research was conducted during International Teaching Practicum (ITP) program in Indonesia. The participants were three pre-service teachers from a university in Malaysia. This research aimed to describe mathematics teaching practicum for junior high school in a different culture-based situation. This type of research is qualitative research. The procedure of this research consisted of observation and interview. The assessment consisted of assessing the ability to plan the lesson and assessing the ability to implement the lesson. The guideline used for the assessment was the teacher competence assessment standard from Universitas Kanjuruhan Malang. The assessment was carried out in two sessions. The results from both sessions were then compared. Interviewing the pre-service teachers was done to understand the difficulties they faced in learning. The results from the assessment and the interview were used to draw conclusions on the description of teaching practicum. The observation result indicated a number of terms used in communication could have different meanings, which caused different interpretation from the pre-service teachers and the students. Despite different language cultures, pre-service teachers and students must be able to understand each other the language used for dialogue.

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Keywords:

Teaching practicum, mathematics, different culture

INTRODUCTION

Teaching practicum for pre-service teachers of junior high school was a requirement to complete the bachelor degree. The teaching practicum for this research was conducted during the program of International Teaching Practicum (ITP). Teaching practicum involves pre-service teachers, peer teachers, university supervisors, administrators, and students (Merç, 2015). The process in the teaching practicum and its contribution for the pre-service teachers' learning were interesting topics for researchers, pre-service teachers educator, and teachers (Lawson et al, 2015). A pre-service teacher in teaching practicum has learned about to design teaching preparation, train the ability in managing the class, and make final assessment. The experience in teaching practicum was the main goal in education program (Çetin & Aydın, 2020; Karagöz & Rüzgar, 2020; Pepin et al, 2017).

The traditional concept about teaching practicum according to the previous research was the implementation of learning theoretically about the practical way of teaching (Bullough et al, 2011). On the other hand, the recent researches reviewed teaching practicum according to the participant's perspective (Lawson et al., 2015). Researches on teaching practicum were reviewing the investigation on teaching practicum. The learning situation in those researches was in a homogenous culture. The learning process would go smoothly if the pre-service teacher and the students had the same culture. The value of learning quality was related to the effectiveness of the communication between the pre-service teacher and the students. The International Teaching Practicum (ITP) program involved pre-service teachers and students of different cultures. Different cultures could affect the effectiveness of communication, which would affect the students in understanding the learning materials. This research is important to do to complement research on practicum learning in classrooms with different language cultures.

Previous Research

A pre-service teacher needed teaching skills. A teacher who had teaching skills could differentiate the important and unimportant information in a complex situation (Barnhart & van Es, 2015). According to that

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information, a teacher could make the right decision to give information in the learning process. The four things related to teacher's needs were content knowledge, pedagogical knowledge, pedagogical skills, and attitudes (Casey & Childs, 2007). Pre-service teachers needed pedagogical knowledge to manage the learning situation that they had to face. Class management could be a problem for the pre-service teachers as new teachers (Chan, 2008). Therefore, the pre-service teacher must be able to understand the basic mathematical abilities of each student. Besides that, pre-service teachers needed to find out their students' way of learning and how to make them learn. Moreover, pre-service teachers needed to master the learning materials (Monk, 1994). The correct understanding about mathematical concept would lead to the correct delivering of mathematical concept. The correct understanding of mathematical concept could also increase their self-esteem; therefore, the pre-service teachers would not have difficulties in controlling the learning process.

The pre-service teachers learnt how to teach correctly from expert mentors. Support from mentors was necessary to develop their teaching skill (Mena et al, 2017). Mentor provided the necessary guidance in teaching practicum. Guidance on the importance of teacher in analyzing teaching practicum critically (Barnhart & van Es, 2015). Mentor portrayed the teacher profile that the students expected. Understanding in that portrayal was a semiotic system in getting meaning and communication (Dinham et al, 2017). Positive communication between the pre-service teachers and the students influenced the students' positive result (Cornelius-White, 2007). The pre-service teachers' teaching skill could increase through guided mentoring approach. Mentoring approach did not only concern on the mentor's ability in guiding the pre-service teachers, but also closely regarded the students' achievement.

Dinham et al (2017) studied the mentoring approach from the pre-service teachers' perspective and the role of mentor to increase the quality of teaching practicum, the research was carried out with the same language culture. The aim of this research is to describe mathematics teaching practicum for junior high school in a different culture-based situation. Effective communication between pre-service teachers and students is not optimal. Hence, this research described the teaching practicum for the pre-service teachers who had different language culture from the students. This research also described the difficulties faced by the pre-service teachers in the classroom.

METHOD

This research was conducted for three months in the International Teaching Practicum (ITP) program, which was a collaboration between Universiti Sains Malaysia and Universitas Kanjuruhan Malang. This type of research is qualitative research. Data were collected using observation procedures and semi-structured interviews. The teaching practicum started from two weeks observation. During that observation, the pre-service teachers observed the mentor teaching in class. The mentor functioned as a model teacher. Within the next weeks, the pre-service teachers were given chance to practice teaching with the guide from the mentor. The mentor gave intensive guidance on the teaching practicum preparation and the learning process in the classroom.

Participants (N = 3) were pre-service teachers from Universiti Sains Malaysia. Participants were drawn at random. The participant has a scientific background in mathematics education. The three pre-service teachers were guided in doing the teaching preparation in the form of lesson plan. This lesson plan was then applied in the classroom. During the teaching practicum, the mentor observed their activity when teaching in the class. Mentor's advice on the lesson would be given after the teaching practicum.

The pre-service teachers reported their daily teaching experience at school. This teaching experience referred to 10 situations (Malmberg & Hagger, 2009): "I observe the tutor teaching", "I observe the teaching done by the tutor", "I apply the feedback from the tutor on my teaching", "I teach independently", "I am observed by the tutor", "I discuss it with mentor", "I discuss it with other teacher apart from the mentor", "I meet other teacher at school", and "I discuss it with the teachers". Pre-service teachers did not only report their teaching experience, but also told the difficulties that they faced during teaching.

The researchers analyze the difficulties experienced by participants using the interview procedure. The interview in this study is a semi-structured interview. Semi-structured interviews were conducted to complement the observation data. The research assessment used is the standard assessment for research practicum at Kanjuruhan University. The assessment of teaching practicum consisted of two parts, which were assessment of the ability to plan the lesson and assessment of the ability to implement the lesson.

Assessment of the ability to plan the lesson is shown in Table 1 and assessment of the ability to implement the lesson is shown in Table 2.

Table 1. Assessment of the ability to plan the lesson

No.	Assessment Aspects
1	Explicitness of formulation of learning goals (it does not imply double meaning and contains the learning result attitude)
2	Choice of the right learning material according to the goals and students' development stage
3	Organization of learning material (coherence, material systematic, and suitability with the time)
4	Choice of source/media/learning tools (suitable with the goals, material, and students' development stage)
5	Explicitness of learning scenario (consist of steps of learning – opening, core, and closing)
6	Detail of learning scenario (the strategy/method of each step and the time allocation of each stage)
7	Suitability of assessment technique and the learning goals
8	Completeness of research instruments (problem, key, scoring guidance)

The scoring for the ability to plan the lesson was calculated using the formula (1):

$$\text{Ability level (TK}_1\text{)} = \frac{\text{total score}}{32} \times 100 \quad (1)$$

Table 2. Assessment of the ability to implement the lesson

No.	Indicators of implementation of learning
1	Opening the lesson
2	Using learning method
3	Using learning media
4	Explaining
5	Managing the problems
6	Mastery of learning material
7	Ability to control the class
8	Time management
9	Teacher's movement when teaching
10	Teacher's voice when teaching
11	Eye direction
12	Giving reinforcement
13	Closing the lesson

The scoring for the ability to implement the lesson was calculated using the formula (2):

$$\text{Ability level (TK}_2\text{)} = \frac{\text{total score}}{52} \times 100 \quad (2)$$

FINDINGS

The teaching practicum was conducted for three months, from February to May 2018. The assessment for teaching practicum was performed in two sessions; therefore, each pre-service teacher had two

assessments. Hence, there were six assessments entirely in this research. The data from the pre-service teachers' assessment could be seen in each table below.

Table 3. Assessment result of pre-service teacher (NA) for the ability to plan the lesson

No.	Assessment Aspects	Score of session 1	Score of session 2
1	Explicitness of formulation of learning goals (it does not imply double meaning and contains the learning result attitude)	4	4
2	Choice of the right learning material according to the goals and students' development stage	4	4
3	Organization of learning material (coherence, material systematic, and suitability with the time)	4	4
4	Choice of source/media/learning tools (suitable with the goals, material, and students' development stage)	3	4
5	Explicitness of learning scenario (consist of steps of learning – opening, core, and closing)	3	4
6	Detail of learning scenario (the strategy/method of each step and the time allocation of each stage)	3	3
7	Suitability of assessment technique and the learning goals	3	3
8	Completeness of research instruments (problem, key, scoring guidance)	3	3

Table 4. Assessment result of pre-service teacher (NA) for the ability to implement the lesson

No.	Indicators of implementation of lesson	Score of session 1	Score of session 2
1	Opening the lesson	4	4
2	Using learning method	4	4
3	Using learning media	4	4
4	Explaining	4	4
5	Managing the problems	4	4
6	Mastery of learning material	4	4
7	Ability to control the class	3	3
8	Time management	3	3
9	Teacher's movement when teaching	3	3
10	Teacher's voice when teaching	4	4
11	Eye direction	4	4
12	Giving reinforcement	4	4
13	Closing the lesson	4	4

Table 5. Assessment result of pre-service teacher (NN) for the ability to plan the lesson

No.	Assessment Aspects	Score of session 1	Score of session 2
1	Explicitness of formulation of learning goals (it does not imply double meaning and contains the learning result attitude)	4	4
2	Choice of the right learning material according to the goals and students' development stage	4	4
3	Organization of learning material (coherence, material systematic, and suitability with the time)	4	4
4	Choice of source/media/learning tools (suitable with the goals, material, and students' development stage)	3	4
5	Explicitness of learning scenario (consist of steps of learning – opening, core, and closing)	3	4
6	Detail of learning scenario (the strategy/method of each step and the time allocation of each stage)	3	3
7	Suitability of assessment technique and the learning goals	3	3
8	Completeness of research instruments (problem, key, scoring guidance)	3	3

Table 6. Assessment result of pre-service teacher (NN) for the ability to implement the lesson

No.	Indicators of implementation of lesson	Score of session 1	Score of session 2
1	Opening the lesson	4	4
2	Using learning method	4	4
3	Using learning media	4	4
4	Explaining	4	4
5	Managing the problems	4	4
6	Mastery of learning material	4	4
7	Ability to control the class	4	4
8	Time management	3	4
9	Teacher's movement when teaching	3	4
10	Teacher's voice when teaching	4	4
11	Eye direction	4	4
12	Giving reinforcement	4	4
13	Closing the lesson	4	4

Table 7. Assessment result of pre-service teacher (SZ) for the ability to plan the lesson

No.	Assessment Aspects	Score of session 1	Score of session 2
1	Explicitness of formulation of learning goals (it does not imply double meaning and contains the learning result attitude)	4	4
2	Choice of the right learning material according to the goals and students' development stage	4	4
3	Organization of learning material (coherence, material systematic, and suitability with the time)	4	4
4	Choice of source/media/learning tools (suitable with the goals, material, and students' development stage)	3	4
5	Explicitness of learning scenario (consist of steps of learning – opening, core, and closing)	3	4
6	Detail of learning scenario (the strategy/method of each step and the time allocation of each stage)	3	3
7	Suitability of assessment technique and the learning goals	3	3
8	Completeness of research instruments (problem, key, scoring guidance)	3	3

Table 6. Assessment result of pre-service teacher (SZ) for the ability to implement the lesson

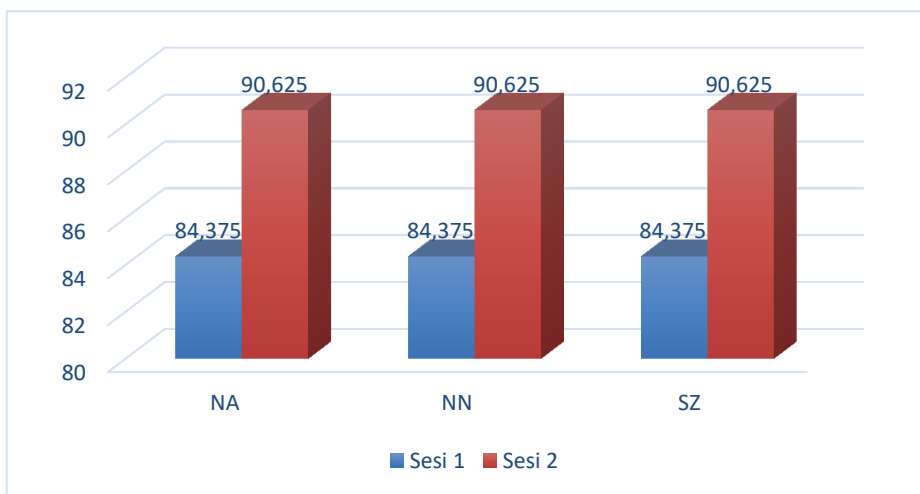
No.	Indicators of implementation of lesson	Score of session 1	Score of session 2
1	Opening the lesson	4	4
2	Using learning method	4	4
3	Using learning media	4	4
4	Explaining	4	4
5	Managing the problems	4	4
6	Mastery of learning material	4	4
7	Ability to control the class	4	3
8	Time management	3	3
9	Teacher's movement when teaching	3	3
10	Teacher's voice when teaching	4	4
11	Eye direction	4	4
12	Giving reinforcement	4	4
13	Closing the lesson	4	4

RESULT, DISCUSSION AND SUGGESTIONS

This research described the ability level of pre-service teachers in planning and implementing the lesson. This research also identified the difficulties faced by the pre-service teachers during the lesson. This research contributed to researches in development of teaching practicum for pre-service teachers which was

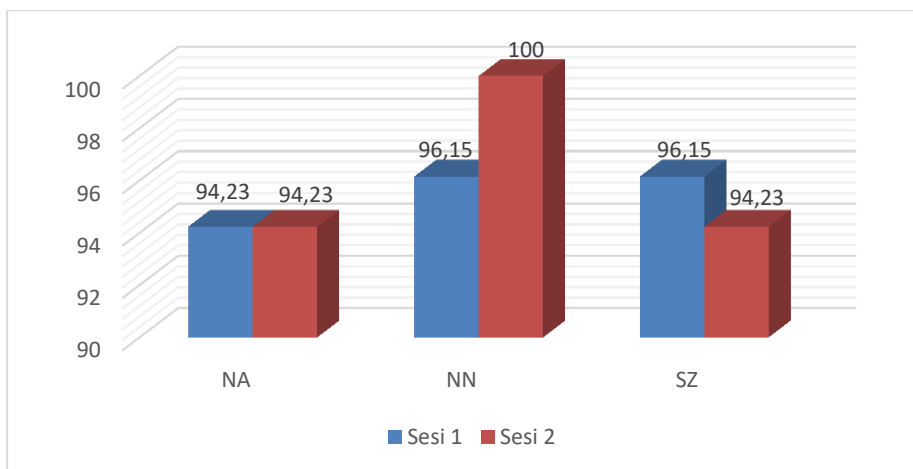
based on different culture. Furthermore, the result of this research could be used as a reference to find an anticipative way to tackle the difficulties in pre-service teacher learning practicum based on different culture.

The assessment result of the ability to plan the lesson on both sessions for each pre-service teacher is shown in Graphic 1.



Graphic 1. The ability to plan the lesson in session 1 and session 2

The assessment result of the ability to implement the lesson in both sessions for each pre-service teacher is shown in Graphic 2.



Graphic 2. The ability to implement the lesson in session 1 and session 2

The ability level to plan the lesson of the three pre-service teachers in session 1 and 2 was the same. Their ability in designing the learning tool showed no significant difference between each of the pre-service teacher. They had the same preparation in the beginning of the lesson. Meanwhile the ability level to implement the lesson for each pre-service teacher in session 1 and session 2 varied.

The ability to implement the lesson involved four areas of characteristics of the classes observed, namely students' emotional level, class management, teaching, and students' participation (Pianta et al, 2008). Students' participation was important in teaching. It was important for teachers to understand how to deliver the lesson to optimize students' learning experience (Dixon et al, 2014). Therefore, pre-service teachers needed to have education on the philosophy of managing the class when teaching, in order that they were able to control the class with different students' ability level.

In general, the students were happy and excited to follow the lesson, students' participation was good. Students with higher self-esteem in mastering mathematical concept had higher emotional involvement and social ability in the lesson (Martin & Rimm-Kaufman, 2015). Emotional involvement was related to emotion such as happiness, interest in understanding the material or task (Mahatmya et al, 2012). Students who had higher emotional involvement displayed better academic ability (Ladd & Dinella, 2009).

In the practicum, social ability in teaching always involved communication, including communication between pre-service teacher and students. Students' achievement did not only depend on the teacher's ability to manage the class, but was also influenced by effective communication between teacher and students (Baquedano-Lopez et al, 2013). Positive communication between teacher and students was more important for a part of the students (Malecki & Demaray, 2006). Communication between the pre-service teacher and students runs smoothly if the language used for communication can be understood by one another, even though there are different language cultures. Different terms used in the communication between the pre-service teacher and the students were addressed by correcting one another. The pre-service teacher adjusted certain parts of the material according to the students' needs (Corno, 2008).

According to the interview and teaching report, the difficulties faced by the pre-service teacher were not in preparing the lesson, but in the ability to implement the lesson. The difficulties were the communication between the pre-service teachers and the students in the lesson. A number of terms used in the communication could have different meaning, so the pre-service teachers and the students had different interpretation. Those terms are listed in Table 8.

Table 8. Several communication terms used in the lesson

Words in communication	Students' interpretation	Pre-service teachers' interpretation
Kemarin	The previous day	Two days ago
Senang	Happy	Easy
Seronok	Something inappropriate, for example clothes	Pleasant
Duduk	Sit down	Stay
Kena	Touching, on target	Must, need
Pantas	Appropriate	Quick
Kongsi	Association, company	Share, give

The pre-service teachers needed to be motivated to overcome the difficulties. Their motivation was closely related to the achievement of the learning goals (Malmberg, 2006). Each pre-service teacher had different ability in overcoming the difficulties. The ability to overcome difficulties was influenced by the teacher's characteristics. Teacher's characteristics affected various characteristic in class practicum (Opdenakker & Van Damme, 2006).

Suggestions

The pre-service teachers could plan the lesson well. They formulated the learning goals, they chose the learning materials according to the goals and students' development level, they organized the learning materials, they chose the learning source/media/tools, they designed the learning scenario, they described the strategy/method and time allocation for each stage of the lesson, they adjusted the assessment technique with the learning goals, and they completed the research instruments, such as the problems, answers, and scoring guide. However, lesson preparation is not tested before it is implemented. Researcher's suggestion is learning preparation that has been designed to be tested in small classes, so that it fits the characteristics of the student's class.

The pre-service teachers could also implement the lesson well. They opened the lesson, they used learning method, they used learning media, they explained the learning materials, they managed the class,

they managed the time, they gave reinforcement, and they closed the lesson. Researcher's suggestion is that the duration of the teaching practicum is even longer, so that class management can be maximized.

The pre-service teachers had difficulties in implementing the lesson. These difficulties lied on the communication between the pre-service teachers and the students in the lesson. A number of terms used in communication could have different meanings, so that the pre-service teachers and the students had different interpretation. Researcher's suggestion is that the pre-service teacher and students must be able to understand each other the language used for dialogue.

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