The influence of modelling the way tutorial activities in improving self-efficacy of elementary teachers as Universitas Terbuka students

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Abstract. This study aims to determine the self-efficacy of teaching for elementary school teachers who are also students of Universitas Terbuka, the Open University in Indonesia. This study's design is by providing modelling the way learning model for students who take elementary mathematics learning courses. The research sample was students from Universitas Terbuka in Batubara learning center and Madina learning center, North Sumatera. The results showed a significant difference in teaching self-efficacy between students who took part in the tutorial using modelling the way learning method and using conventional methods. It can be concluded that the use of modelling the way learning methods in tutorial activities can lead to self-efficacy teaching students when teaching in their respective classes.

1. Introduction
Indonesia, as a vast archipelago, makes the distribution of universities uneven. This led to a lack of even distribution of knowledge obtained by the people in Indonesia. Especially in learning, many educators do not have the expertise or experience appropriate to their teaching assignments in remote areas. To solve this problem, the government, through the Open University, conducted a distance learning program. Distance education is expected to help resolve the implementation problems of learning knowledge in Indonesia. Distance education can help people in remote areas to experience the beauty of education [1].

Far-reaching education is a planned education, with conditions that occur in different places of teaching. Distance education programs require other teaching techniques from general knowledge, specific learning techniques and designs, communication methods using specialized technology, and administrative media [2]. One of the factors in distance education's success is the instructional design's ability to provide satisfaction and resistance to students, a great desire to learn information technology currently developing [2,3].

This program is expected to help equitable knowledge, especially for teachers in the regions, mainly for teachers in areas where there is no university. On the other hand, this distance learning program can indirectly help students learn due to teachers' knowledge in college. It can be transmitted to students-especially knowledge about teaching theory and teaching practice.

However, the reality that happened at Universitas Terbuka UPBJJ Medan, many tutors were not optimal in channelling knowledge to their students. Tutors as instructors only provide theoretical knowledge. This teaching model makes students unable to experience the transfer of practical
knowledge. The main principle in learning is the lecturer's success in transferring his knowledge to the students he mentions [4]. Failure to transfer knowledge to students who also act as teachers in schools can cause inability to foster student self-efficacy in teaching in their classes later.

The tutorial learning process widely applied to Universitas Terbuka UPBJJ Medan is that students learn more independently. Students do independent learning by studying the books given. Teachers can read books or find information from the internet about how to teach. Much information is obtained through these searches, but there are essential things that the teacher cannot get through the investigation, namely self-efficacy. The teacher feels insecure about the teaching methods he has obtained. This is because no expert is considered capable of growing the teacher's self-efficacy. In distance education, self-efficacy plays an important role. The importance of self-efficacy because it has an impact on self-efficacy, intrinsic, and academic orientation, critical thinking, and self-regulation [2, 5-7].

Knowledge and experience are essential things that a teacher has. Both of these are the initial capital to achieve success in teaching in the classroom. Mahler, Großschedl and Harms [8] In principle, three domains need to be considered in building teacher motivation in teaching. The three parts are (1) self-efficacy, (2) specific subject enthusiasm, (3) enthusiasm for teaching the subject.

Learning that is important in elementary school is mathematics. In everyday life, mathematics plays a considerable role. The magnitude of the part of mathematics requires students to be able to master mathematics. Mathematics also requires students to be logical, critical, analytical, creative, and create good cooperation [9,10]. Lots of material in Mathematics lessons that examine abstract objects and require deductive reasoning. The nature of this Mathematics lesson results in difficulties for students in learning the lesson.

Many students fail in mathematics [11]. Responding to this matter, the mathematics teacher must find a suitable learning method for his students, especially teachers in remote areas or far from their location. The teacher is the principal director of learning. The teacher also has the task of designing time management, planning to teach, managing the classroom environment. All tasks must be able to be carried out well in learning. The impact of the learning process generated by the teacher will shape mathematical anxiety in students, especially elementary school students [9].

Teachers studying at the Universitas Terbuka can consult with tutors during face-to-face activities and how a tutor acts as a director in front of his students because the tutor will understand what methods and techniques are suitable for the material to be taught to students. Similarly, the use of learning media that will be used. When face-to-face activities at the Universitas Terbuka, a tutor must help students understand learning material and provide self-efficacy to students, self-efficacy that must also be generated in students is self-efficacy in teaching. One method of learning when tutorials can lead to teaching efficacy in students is modelling the way learning model.

Modelling the way is a metamorphosis of the sociodrama method, namely by dramatizing an action or behaviour in social relations. In other words, tutors provide students with opportunities to carry out certain activities or roles as they are in life. The use of modelling the way learning models during tutorial activities made students, on the other hand, also teachers in elementary schools to be more confident. As a teacher, self-efficacy can arise because they feel that they get practical information directly from experts. The results showed that self-efficacy is a variable that is meaningful to the practice of teaching teacher thinking, increasing students' self-confidence so they can complete their academic assignments [12-14]. Teacher self-efficacy is expected to make their teaching methods better to understand learning in the classroom better. Hascher and Hagenauer [15] state that it is hoped that teachers more open to theory (education) will be more likely to develop a higher sense of self-efficacy and trigger positive emotions, which will foster their autonomy support for student learning in the classroom.

The use of modelling the way in tutorial activities makes mathematics learning more tangible because the material known is directly applied to the class's teaching method. This teaching practice allows students to immediately feel and witness the learning conditions that will later be applied in their respective studies.
2. Methods
This type of research is quasi-experimental in this study using two sample groups, one experimental group that used the modeling the way learning model, and one control group using conventional teaching methods.

The population of the study was Universitas Terbuka UPBJJ Medan students who follow elementary mathematics learning courses. The research samples were from Batubara learning center and Madina learning center. Both learning centers have met the requirements statistically to represent the existing population. Each learning center consists of two classes. One class as an experimental group uses the modelling the way learning model, and one class as a control group using conventional teaching methods.

This study's data were collected using questionnaires given to samples in the experimental class and the control class. Questionnaires in the form of multiple-choice questions about the condition of tutorial activities and students' self-efficacy while teaching in their respective classes after obtaining lecture material.

Indicators in determining self-efficacy in teaching are: (1) Confident that they can complete the learning process, (2) Believe that they can motivate themselves to take the necessary actions in completing teaching, (3) Believe that they can try hard, are persistent and diligent, (4) Believe that you can face obstacles and difficulties, (5) Believe that you can complete tasks that have a wide or narrow (specific) range.

The purpose of giving a questionnaire to determine students’ responses to teaching self-efficacy obtained after attending lectures. The end of the research activity, the sample was given a test to determine the quality of learning outcomes of each class.

3. Results and Discussion
One hundred thirty students who were sampled in this study were all elementary school teachers. The sample consisted of two groups: experimental class, as many as 62 people, and the control class as many as 68. The experimental and control classes are from the same learning center, namely from Batubara learning center and Madina learning center. The selection of the learning center is based on the geographical location in the province of North Sumatra. Batubara learning center is located in the coastal area, and Madina learning center is located in a mountainous area.

All research samples were elementary school teachers who had worked for at least three years. Samples generally understand the conditions and characteristics of their students. The details are listed in table 1.

Table 1. Work period as a teacher

| Years of Service | Batubara Learning Center | Madina Learning Center |
|------------------|-------------------------|------------------------|
|                  | Experiment | Control | Experiment | Control |
| 0 – 5 year       | 16         | 20       | 25         | 20       |
| 6 – 10 year      | 4          | 8        | 4          | 12       |
| 11 – 15 year     | 5          | 3        | 3          | 2        |
| 16 – 20 year     | 3          | 1        | 2          | 2        |
| TOTAL            | 28         | 32       | 34         | 36       |

Table 2. Dimension of before learning at experiment class

|                          | N  | Lowest Score | Highest Score | Mean  | SD   |
|--------------------------|----|--------------|---------------|-------|------|
| Teacher self-efficacy in teaching | 62 | 10           | 20            | 16.42 | 2.16 |
| Make to Motivate and Take on Responsibility | 62 | 12           | 24            | 18.96 | 2.45 |
| Effective Teaching      | 62 | 11           | 20            | 15.32 | 2.22 |
Table 3. Dimension of before learning at control class

|                           | N | Lowest Score | Highest Score | Mean  | SD  |
|---------------------------|---|--------------|---------------|-------|-----|
| Teacher self-efficacy in teaching | 68 | 12           | 21            | 18.31 | 2.73|
| Make to Motivate and Take on Responsibility | 68 | 14           | 22            | 18.90 | 2.16|
| Effective Teaching        | 68 | 12           | 18            | 16.55 | 2.50|

Table 4. Dimension of after learning at experiment class

|                           | N | Lowest Score | Highest Score | Mean  | SD  |
|---------------------------|---|--------------|---------------|-------|-----|
| Teacher self-efficacy in teaching | 62 | 22           | 32            | 25.50 | 1.75|
| Make to Motivate and Take on Responsibility | 62 | 18           | 28            | 22.75 | 1.50|
| Effective Teaching        | 62 | 20           | 32            | 28.50 | 1.65|

Table 5. Dimension of after learning at control class

|                           | N | Lowest Score | Highest Score | Mean  | SD  |
|---------------------------|---|--------------|---------------|-------|-----|
| Teacher self-efficacy in teaching | 68 | 14           | 25            | 22.75 | 2.25|
| Make to Motivate and Take on Responsibility | 68 | 16           | 25            | 20.50 | 2.30|
| Effective Teaching        | 68 | 14           | 22            | 18.85 | 2.35|

To determine the statistical test, modelling the way learning model in increasing the self-efficacy of teaching, teachers used a significant level of 0.05. An independent t-test carries out the test. Before the treatment of all samples, classes were carried out, and a sample class was tested. From the results of testing the sample class, it was statistically obtained that there were no significant differences between the experimental class and the control class in each of the learning center. This statistical the test is intended to determine the teacher's self-efficacy in teaching in the classroom, as stated in table 6.

Table 6. T-Test by sample groups of before learning model

| Group              | N  | df  | t    | p    |
|--------------------|----|-----|------|------|
| Experiment Class   | 62 | 128 | 0.900| 0.350|
| Control Class      | 68 |     |      |      |

In the research period in the control class, tutors provide lectures to students using the tutorial method in group discussions. Furthermore, students joined in the control group will teach in their respective schools and use the conventional methods they usually apply. In general, teachers teach using discussion methods and direct instruction.

For the experimental class, tutorial learning is done using modelling the way learning method. Next, students will teach in their respective classes according to the teaching methods they get in the tutorial class. In teaching in each class, students from the experimental class can apply the teaching methods. The teaching method carried out by students from the experimental class must have been contaminated by modelling the way method was obtained during the tutorial.

After the two sample groups were given different treatments, statistical data was obtained that there were significant differences between the two groups, as shown in table 7.
From the results of the study, it was found that there was a significant difference between the experimental class and the control class about the teacher's self-efficacy in teaching in the classroom after obtaining tutorial learning. This is because the sample who experienced knowledge in the experimental class immediately received the practice of learning in the classroom that could be applied to learning in their respective schools. This condition makes students who are also status as teachers get confidence in delivering material in their classrooms. In addition to learning practices that are directly in the tutorial class, students can also discuss with tutors the obstacles that often occur in their classrooms.

Unlike the case with the conditions that occur in the control class. Students in the control class in the tutorial activities only get theoretical knowledge. Tutors explain the module theories, and students only ask questions about material that they do not understand. In this research note, modeling methods led to an increase in teachers' self-efficacy when teaching at their respective schools. Supporting this, various studies in various countries have been conducted on teacher self-efficacy in teaching. [16] Teachers' self-efficacy beliefs increased, particularly for those receiving a coaching intervention.[17] Generally confirmed that teachers with high levels of self-efficacy might perform their teaching practices less efficiently in some situations. In contrast, teachers with a low-level of self-efficacy might perform their teaching practices more efficiently. Adhikari [18] state that teaching experience, teacher's engagement in professional activities, mathematical and pedagogical content knowledge, and the school's working environment are major contributing factors in the development of the self-efficacy beliefs in mathematics teachers. Self-efficacy development can be done through professional training. Self-efficacy according to [19] can be increased through increasing teaching knowledge.

4. Conclusion
Based on the results of the study, it can be concluded that the use of modelling the way learning methods in the tutorial activities can improve the teacher's self-efficacy in teaching in their respective classes. The use of modelling the way learning model can improve teaching self-efficacy because the learning strategy provides concrete examples of how to teach the material. It is expected that tutors at Universitas Terbuka will use the modelling the way learning model when implementing tutorials, especially on subjects that are directly related to the material in elementary school.

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