



Improving the Ability of MTs Mathematics Teachers Using Mathematics Learning Media Through the Training of "Kelasmen" Model in Target Madrasah in the Temanggung Regency

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Abstract

The purpose of this research was to improve the ability of MTs mathematics teachers in the Temanggung regency to use mathematics learning media through the training of the "Kelasmen" model. This was supervisory action research. The research period was three months from mid of February 2019 to mid of April 2019. This research was conducted in three cycles on mathematics teachers in the Pringsurat, Tembarak, Selopampang, Kaloran, and Temanggung subdistrict in eleven targets MTs in Temanggung regency. The stages undertaken by the researcher in this study are (1) the preliminary initial reflection stage, (2) the planning stage, (3) the implementation phase of the action, (4) the observation phase, and (5) the reflection phase. After being given training through the "Kelasmen" model on the use of mathematics learning media, the ability of mathematics teachers in eleven MTs in Temanggung regency experienced an improvement from 53,33% in cycle I to 66,67% in cycle II and 86,67% in cycle III. Therefore, it could be concluded that the training of the "Kelasmen" model could improve the ability of MTs mathematics teachers in the Temanggung regency to use mathematics learning media. Thus the hypothesis of the proposed action was declared successful and accepted.

Keywords: "Kelasmen" model, learning outcomes, mathematics learning media

INTRODUCTION

The Law on the National Education System Number 20 of 2003 stated that learning is defined as the process of interaction of students with educators and learning resources in a learning environment (Depdiknas, 2003). Concerning the development of teaching skills, it can be carried out through the training or workshop that aims to obtain the level of performance needed in their work quickly and economically and develop existing performance so that their achievements on the current task are improved and they are prepared to accept greater responsibilities in future. The workshop is intended to enhance performance by developing appropriate ways of thinking and acting as well as knowledge of work assignments including the task of carrying out self-evaluations (Hamalik, 2011).

Observation made by the researcher as a supervisor in workshops or training activities, that the structure of the program in the training guidelines compiled in each training or workshop activity was still dominated by the activities of preparing the administration of learning and only a few activities that guided the teacher in mastering the material and the use of instructional media.

The observations or dialogues of researchers with several teachers in the target schools in Temanggung regency, that most of them did not master the use of existing media and learning resources so that the learning they carried out was still dominated by transferring rather than creating learning that allowed students to construct their knowledge.

The training model that would be used in this research was the training of the

"Kelasmen" model which was based on constructivist learning theory that allowed participants to communicate their knowledge and experience after using instructional media. The training model is based on the process of learning for adults, namely building knowledge through the transformation of experience.

To express the level of involvement and understanding of the participants in this research, the "Kelasmen" framework was used, a training model that starts from the Activity (Kegiatan) Explanation (Penjelasan) Implementation (Implementasi), that was adopted from the Action Process Object Schema (APOS) learning theory from Rusman (2011).

Activities (actions) are repeatable physical or mental manipulations that transform objects with a method. If all activities occupy all of them in the mind of the individual or are only imagined (when they occur) without the individual requiring all

specific steps, then the activity has been interpreted as an explanation. Cognitive events that can interpret an activity leading to an explanation are said that the development of participants' knowledge is in the intra-level.

When the explanations themselves are transformed by an action, it is said that the explanation has been encapsulated into the ability to implement. If this happens, the participants can encapsulate an explanation towards the ability to implement, then the development of the participants' skills is said to be at the inter-level.

The main characteristic of the training of the "Kelasmen" model is training that starts from carrying out manipulation activities, communicating the results of activities to create cooperation among fellow participants, and the ability to implement with new concepts in learning. There are six main phases in the training of the "Kelasmen" model. The six phases are presented in the following table.

Table 1. Main Phases in the "Kelasmen" Model Training

1	Participant's orientation to the problem	The facilitator explains the objectives of the training, explains the facilities/materials needed, motivates participants to get involved in problem solving by doing an activity or action.	Pay attention to the facilitator's explanation then question and answer about the tasks to be performed.
2	Organizing participants to learn	Help participants define and organize learning assignments related to problems.	Form heterogeneous groups based on their abilities, skills, and understanding of learning media.
3	Guide participants to do something individually or in groups	The facilitator encourages participants to do something using manipulative materials, pictures or other sources to solve the problem.	Discuss the problems given by the facilitator about the understanding, types, functions, and use of media in learning activities.
4	Explain or communicate the work based on what has been done	The facilitator helps participants explain or communicate the work to other participants.	Demonstrating the use of learning media according to the chosen topic.
5	Developing problems in other forms	The facilitator encourages and guides participants to develop problems in other ways.	Explain how the media are created, used, and related to the concepts being taught. Develop learning media according to available sources.
6	Analyze and evaluate the problem solving process	The facilitator helps participants to reflect or evaluate the investigation them and processes that they use.	Summarize and document the experience or results they obtain it.

In addition to expressing the level of understanding of participants, the “Kelasmen” framework can also be used to express the level of participants involved in the learning process. The involvement of these participants can be observed from the actions (activities) carried out by the participants by using various media (tools) in solving problems, communicating (explaining) knowledge to other participants, implementing various media in learning a concept faced with prior knowledge.

Increasing the ability of teachers to design and use mathematics learning media through the training of the “Kelasmen” model that emphasizes consultative collaborative methods will provide opportunities for sharing between one teacher and other teachers. Hence the use of mathematics learning media can be increased both in theory and in its implementation. Thus it can be suspected that through the training of the “Kelasmen” model can improve the ability of teachers to design and use mathematics learning media.

Research about improving teachers’ ability through the training of the “Kelasmen” model has been conducted by Suaidin (2012), a supervisor in Dompu regency. The researcher implemented Contextual Teaching Learning (CTL) learning model through the training of the “Kelasmen” model. The result of his research showed that the training of the “Kelasmen” model could improve teachers’ abilities using the CTL learning model. Asikin et al. (2015) have developed innomatts training model to improve mathematics teachers’ competence and character in their research. On the other hand, the research about training models or learning media also has been conducted with students as the subject. Ansharullah & Ristiliana (2012) studied the effect of learning media on students’ activities and Nurcahyo (2016) discussed the effect of learning media on students learning outcomes in his research.

Based on the above background, the researcher intends to help mathematics subject teachers improve their ability to use

mathematics learning media through the training of the “Kelasmen” model. Thus, the aims of this research are to (1) find out improving the ability of MTs mathematics teachers in the Temanggung Regency to use mathematics learning media through the training of the “Kelasmen” model, and (2) evaluate the ability of MTs mathematics subject teachers in the Temanggung Regency to use instructional media after attending the training of the “Kelasmen” model. The contributions of this research are (1) as a reflective material for the supervisor training program through the training of the “Kelasmen” model so that revisions can be made to the activities that have been carried out, (2) if the implementation of supervisory guidance through the training of the “Kelasmen” model affects improving the ability of the teachers, then it can be considered as a training test material for supervisors in the future, and (3) the result of this study can be used as consideration in conducting training in MTs in general, and specifically in MTs in Pringsurat, Kaloran, Tembarak, Selopampang, and Temanggung subdistrict in eleven targets MTs in Temanggung regency.

RESEARCH METHOD

This was supervisory action research. The subjects of this research were mathematics teachers in the Pringsurat, Tembarak, Selopampang, Kaloran, and Temanggung subdistrict in eleven targets MTs in Temanggung regency, as many as 15 teachers. The stages of each cycle in this research included (1) the preliminary initial reflection stage, (2) the planning stage, (3) the implementation phase of the action, (4) the observation phase, and (5) the reflection phase.

The process of implementing supervisory actions in the study was carried out in three cycles consisting of three meetings. The time used for each meeting was 180 minutes. The first meeting was held on Wednesday, 13 March 2019, centered at MTs Muhammadiyah Tempuran, Kaloran

subdistrict, the second meeting on Wednesday, 27 March 2019, was centered at MTs Mualimin Mudal Temanggung subdistrict, and the third meeting on Wednesday, 10 April 2019, centered on MTs Al Mukmin Muhammadiyah Tembarak. The research instrument consisted of test questions and activities observation sheets. The activities observation sheets were used to observe the teachers' activities according to the indicators.

RESULTS AND DISCUSSION

The supervisory action research was carried out following the training plan procedure and training scenario. In cycle I, the results of the observer summarized that the training activities of the teachers with the training the "Kelasmen" model obtained the following results: 3 teachers or 20% got good categories, 5 teachers or 33.33% fair categories, 4 teachers or 26.66% with enough categories and 3 teachers or 20% with poor categories. These results indicated that in the cycle I as a whole has not reached the desired results, because the average value that teachers obtained has not reached the completeness percentage of 85%. This is because the teachers still do not understand how to use mathematics learning media, especially LCD, so the teachers need intensive assistance. The data regarding the results of the study in cycle I is presented in Table 2.

Table 2. The Results of the Study in Cycle I of the Training of the "Kelasmen" Model

No.	Value Range	Frequen cy	Percentage
1.	40 – 52 (poor)	3	20 %
2.	53 – 64 (enough)	4	26,67 %
3.	65 – 76 (fair)	5	33,33 %
4.	77 – 88 (good)	3	20 %
Total		15	100 %

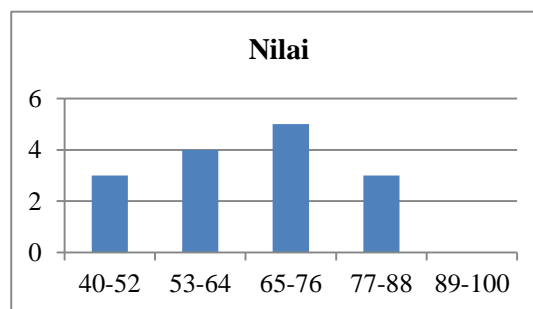


Figure 1. The Results of the Study in Cycle I in the Bar Diagram

Based on the research data in cycle II, the implementation of cycle II obtained an average value of 68 while the percentage of completeness was 66.67% or there were 10 out of 15 mathematics teachers in VII, VIII, and IX grades, it was completed while 5 teachers did not complete 33.33%. These results indicate that in cycle II as a whole has not been completed, because teachers who score above 65 are only 66.67%, smaller than the desired completeness percentage of 85%. This is because the teachers still have not memorized how to use the LCD, especially the teachers are not yet right on how to make a PowerPoint, therefore the activeness of the researcher is needed to guide the target teachers. The problem discussed is the stage of activities providing guidance and motivation so that teachers are willing to act and innovate in teaching mathematics with electronic media. As for the results of the observer summarized that the activities of training teachers with the "Kelasmen" model obtained the following results: 6 teachers or 40% got good categories, 4 teachers or 26.67% were fair categories. 4 teachers or 26.67% were enough categories and 1 person or 6.67% got poor categories. These results indicate that in cycle II as a whole has not reached the specified results, because the teachers who obtained the value of the category have not yet reached the desired results that are equal to 85%. This is due to

motivating the performance of these teachers because the supervisor has informed that at the end of the training there will be an assessment so that at the next meeting the teachers are more motivated to motivate their performance. Besides, teachers have also begun to understand what is intended and desired by supervisors in conducting training with the implementation of ongoing training. The results of the study in cycle II are presented as follows.

Table 3. The Results of the Study in Cycle II of the Training of the “Kelasmen” Model

No	Value Range	Frequen cy	Percentage
1.	40 – 52 (poor)	1	6,67 %
2.	53 – 64 (enough)	4	26,67 %
3.	65 – 76 (fair)	4	26,67 %
4.	77 – 88 (good)	6	40 %
Total		15	100 %

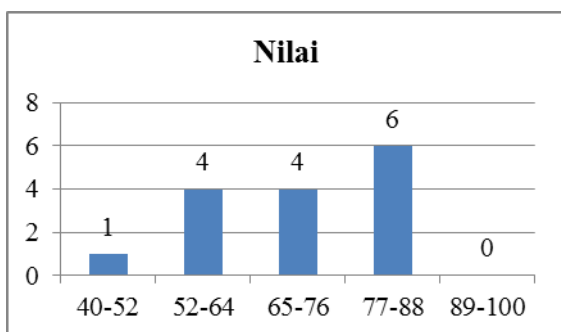


Figure 2. The Results of the Study in Cycle II in the Bar Diagram

The research data in cycle III presented the average value of training in cycle III of 71.33 while the completeness percentage was 86.66% or 13 teachers out of 15 people. Teachers as trainees, all who have achieved completeness in following the training of the “Kelasmen” model. Therefore, the training of the “Kelasmen” model can be said to have met the completeness of 86.66% above the specified indicator which is 85%. The results of this cycle III, teachers race to perform better than the cycle II. An increase in training results

in cycle III is influenced by the supervisor's negligence in serving questions and complaints of teachers as training participants so that teachers become more understanding of their respective assignments and can make simple patterns and models. Besides this completeness is also the impact of the cooperation of supervisors, with teachers especially those who have mastered the techniques and ways to make learning media give each other and help their colleagues who are experiencing difficulties. The activities of training teachers using the “Kelasmen” model obtained the following results: 1 teacher or 6.67% got a very good category, 5 teachers or 33.33% had a good category. 7 teachers or 46.67% was fair and 2 people or 13.33 were enough categories. These results indicate that in cycle III as a whole has reached the specified indicators because the average value has achieved the desired results of 85%. The results of the study in cycle III are given as follows.

Table 4. The Results of Research in Cycle III of the Training of the “Kelasmen” Model

No	Value Range	Frequen cy	Percentage
1.	40 – 52 (poor)	0	0 %
2.	53 – 64 (enough)	2	13,3 %
3.	65 – 76 (fair)	7	46,7 %
4.	77 – 88 (good)	5	33,3 %
5	89 – 100 (very good)	1	6,7 %
Total		15	100 %

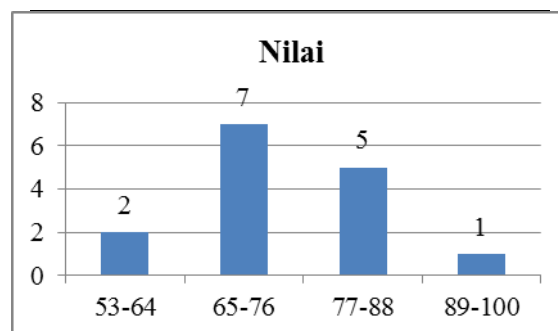


Figure 3. The Results of the Study in Cycle III in the Bar Diagram

Table 5. The Results of Cycle 1, Cycle II, and Cycle 3 Activities

No	Value Range	Cycle 1		Cycle 2		Cycle 3	
		Tot al	%	Tot al	%	Tot al	%
1	40 – 52 (poor)	3	20	1	6,6	0	0
2	53 – 64 (enough)	4	26,67	4	26,67	2	13,33
3	65 – 76 (fair)	5	33,33	4	26,67	7	46,67
4	77 – 88 (good)	3	20	6	40	5	33,33
5	89 – 100 (very good)	0	0	0	0	1	6,67

Based on Table 5, improving the ability of MTs mathematics teachers in Pringsurat, Tembarak, Selopampang, Kaloran, and Temanggung subdistrict or eleven MTs in Temanggung regency in the 2018/2019 academic year, using mathematics learning media through training of the “Kelasmen” model, that are cycle I = 53.33%, cycle II = 66.67%, and cycle III = 86.66%. Besides, the achievement of MTs mathematics teacher activities in Pringsurat, Tembarak, Kaloran, and Temanggung district in eleven targets MTs in Temanggung regency in the 2018/2019 academic year in using learning media after attending the training of the “Kelasmen” model are cycle I in a good category of 20% and fair category of 33.33%; cycle II in a good category of 40% and fair category of 26.67%; and cycle III in a very good category of 6.67%, good category of 33.33%, and fair category of 46.67%. From the results of this analysis, it can be concluded that the teacher completeness obtained after being given training through the training of the “Kelasmen” model on the use of mathematics learning media, which is the completeness of the teacher in following the training in the cycle I was 53.33% to 66.66% in the cycle II, there was an increase of 13.33%. From training in cycle II and after given training by supervisors to cycle III got 86.66%, it increased to 20%.

CONCLUSION

Based on the analysis of the results of this research and followed by the discussion, it can be concluded that the ability of MTs mathematics teacher in Pringsurat, Tembarak, Selopampang, Kaloran, and Temanggung

subdistrict in eleven MTs in Temanggung regency in the 2018/2019 academic year after being given training through the training of the “Kelasmen” model on the use of mathematics learning media, experienced an improvement from cycle I was 53.33% to 66.66% in the cycle II, there was an increase of 13.33%. From training in cycle II and after training by supervisors to cycle III was 86.66%, it increased to 20%. Thus the hypothesis of the proposed action is declared successful and accepted. Besides, activities of MTs mathematics teachers in Pringsurat, Tembarak, Selopampang, Kaloran, and Temanggung district in eleven MTs in Temanggung regency in the 2018/2019 academic year in using instructional media after attending the training of the “Kelasmen” model having a positive impact in motivating teacher activities. This can be seen from the activities of teachers who are increasingly creative in making mathematics learning media, teacher activities increase from cycle I, II, and III, namely from the category of fair to be good and increased to very good.

Recommendation

Some recommendations that researcher can be given are (1) research needs to be continued with a series of studies that develop more reliable measures of success to illustrate the ability of teachers to use mathematics learning media; (2) the training of the “Kelasmen” model requires full attention and high discipline in each step of training and careful planning, for example in the allocation of time and the selection of appropriate concepts; and (3) the teacher follows the development of educational technology so that they can provide services to the students while developing and improving their professionalism as educators.

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