Identification of math teacher’s capabilities in classroom action research

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Abstract. Classroom action research (CAR) is very important to be carried out by a teacher. However, it was found that very few teachers conducted classroom action research. This research is quantitative descriptive. The research aims to identify the teacher's initial ability to carry out the practice of classroom action research. The research subjects were math teachers of the Merauke consisting of 60 teachers. Data collection techniques using interview, questionnaire and observation methods. Analysis of research data with data reduction methods, data presentation and conclusion drawing. The results showed that 73% of teachers had never carried out CAR, 27% had implemented CAR. Most teachers, 85% said that CAR is very important and must be carried out by every teacher. There are still very high teachers who find it difficult to implement CAR, which is 81.7% with average difficulties for the CAR title component (30%) and Library (23.3%). The main need that is urgently needed immediately is mentoring CAR theory understanding (41.7%), proposal preparation assistance (36.7%) and CAR practice assistance (20%). The training model desired by the teacher is a workshop (40.1%) and practicum (31.8%).

1. Introduction
The teacher is someone or those who play an important role in managing the classroom and structuring learning to create an education. Work as a teacher has been awarded as a noble profession, a source of light of goodness to anyone who is met. Through a teacher, science can be channel to students to add experience and change attitude for the better. Teachers who are better known as educators have a role in conducting learning plans and practices, providing an assessment of learning, providing guidance and training for students and playing a role and research and also community service [1]. Service activities are generally the main tasks of teachers at the level of higher education or those called lecturers. But for research activities, nowadays it is no longer the task of the lecturer alone, but is mandatory to be carried out by the teacher as part of self-development.

Before becoming an educator, every teacher has received a pre-service education through academic education in higher education including undergraduate, master and doctoral education. In addition, after becoming an educator the teacher still gets an increase in competence, namely in-service education.
through education and training or training. However, sometimes the training obtained by the teacher is not in accordance with the problems of their respective work. Training given is generally about topics that are common to all educators in the country, without taking into account the needs of each region or every school even every teacher. This happens because of the lack of identification of the needs of educators in the field so that the training and education provided is not efficient for every teacher who gets it [2].

Every year the development of the needs of teachers in the regions and in schools is sometimes fixed but can also change. So that every problem faced by the teacher needs to be handled differently for each case. Nationally, a common obstacle faced by teachers in learning is how to create conducive learning so that targeted learning objectives can be achieved. In creating a conducive learning atmosphere, it requires the ability of a teacher to plan, implement and evaluate learning in a professional manner. In learning planning activities, the latest curriculum, namely the 2013 curriculum provides its own problems for teachers who have just implemented the curriculum in terms of compiling learning tools and their implementation in their respective classes [3]. While in the implementation of learning, generally there are still many educators who do not want to move from the teacher-centered learning model to the student-centered learning model.

Problems that occur in classroom learning can be handled in various ways through specific approaches, strategies, learning techniques. In order for the solution to the problems in the class to be appropriate or on target, an in-depth study of these problems is needed. To obtain an assessment of the right problems, the teacher must review the problem through a study. Research in the field of education is available in a variety of ways such as experimental research and action research. Class action research is a separate identity for a teacher. This is because this research is research that can only be done by the teacher, meaning that it cannot be done by other professions. Class action research is a study that describes the occurrence of causation from treatment, as well as describing what happens when treatment is given, and describes the entire process from the beginning of the treatment until the impact of the treatment [4]. To begin the action research, the educator class needs to identify the problems that occur in each class, determine the right solution, then carry out the action.

Class action research is not a new research, this type of research was first introduced by American social psychologist Kurt Lewin in 1946 who later developed in the hands of experts such as Stephen Kemmis, Robin McTaggart, Jhon Elliot and so on [5]. Although class action research has been around for decades, for some teachers, especially senior teachers, this research still sounds familiar to them. Many teachers have never received lectures on action research while on the bench because they have not been popular when they were in college. The lack of knowledge about action research has caused the number of teachers conducting the research has not been comparable with the number of teaching staff in schools. This is a problem because of regulations regarding improving teacher performance which require classroom action research as one of the mandatory requirements [6]. This condition requires a handling of both the school, the government and the teachers themselves in increasing the amount of teacher research.

The results of observations and interviews with schools in Merauke, it was found that there were still a few teachers who carried out classroom action research. As a result, many teachers were hampered in arranging promotions that required research. The lack of publication is also one aspect of teacher professional competence assessment. The results of several studies such as those conducted by Fahdini and friends found that the competence of certified teachers in Sumedang District is still far from the professional category [7]. this condition is not much different from the competence of teachers in Merauke.
Nur’aini and colleagues’ research results show that teacher competence in Merauke is very influential on the acquisition of student test scores, so it is appropriate for teachers to always try to improve their self-competence through self-development, one of which is research[8]. The identification of teacher problems in classroom action research is needed to be done, so that they can determine the types of training needed by teachers to improve professional competence. For this problem, the researcher conducted an analysis to identify the ability of teachers at merauke in carrying out classroom action research. The results of the identification will be used to determine the type of assistance that will be given to the teacher to produce action research.

2. Methods

This research is a quantitative descriptive study that is used to analyze data by describing or describing collected data as they are without intending to make conclusions that apply to the public or generalizations [8]. The study was conducted in May 2019 in Merauke School’s with a study population of 60 teachers. The research sample is the entire population. The selection of the entire population is based on the consideration that the results of the study will be used to determine the type of training that will be provided to all teachers so that information about the problems of the teacher must be from all teachers for accuracy in the solutions offered later.

The research instrument is a teacher's understanding questionnaire about classroom action research that is an open and closed statement. Questionnaire consists of 10 open questions and 10 closed questions. In addition to the questionnaire, researchers also used interview guidelines which were broadly the same as the questionnaire questions. The technique of collecting data in research is through questionnaires, interviews and documentation. Distribution of questionnaires was carried out by distributing questionnaires for understanding classroom action research directly to 60 research subjects during the initial socialization of community service activities. The next data collection technique was interviewing 8 teachers representing the entire study sample. Documentation is done in the form of observing examples of classroom action research conducted by several teachers.

The data obtained in this study are qualitative data and quantitative data. Qualitative data in the form of teacher statement data relating to open questions given in the questionnaire and categorical data for answers to closed questions. Quantitative data in the form of the percentage of teachers who choose certain categories of closed questions.

The data analysis technique in this study consisted of three stages of miles and huberman model data analysis, namely data reduction, data presentation, and conclusion and verification [9]. Data reduction in this process researchers conduct data collection with respondents through interviews and questionnaires. Data presentation is done by writing questionnaire results and observations in the form of categories. While the activities of drawing conclusions and verification researchers conducted a comparison of the results of the questionnaire with interviews and drawing conclusions. Broadly speaking, the research procedure consists of three steps, namely preparation, implementation and analysis of data.

3. Result and Discussion

3.1 research result

Based on the results of the distribution of questionnaires obtained data the percentage of teachers who have carried out classroom action research (CAR) is presented in the following diagram.
Figure 1. Teacher Involvement in CAR Implementation

The results of the study relate to the views of teachers regarding the importance of classroom action research carried out by the teacher of the data presented in diagram 2 below.

Figure 2. Important and Mandatory of CAR

On the question about the level of difficulty of the teacher in carrying out the action research the following results are obtained.

Figure 3. CAR Difficulty Level

Follow-up questions relating to educational difficulties in the study obtained results regarding the components of CAR that are difficult for educators are presented in figure 4 below.
Figure 4. The Hardest of CAR component

Next after getting information about the difficulties of the teacher, the next question is to get the teacher's opinion about what kind of training they want. The results of filling out the questionnaire are obtained data in figure 5 below.

Figure 5. Type of Training Needs

The final part of the questionnaire asks about the training model desired by the teachers. The results of the study were obtained as follows.

Figure 6. Type of Training Model

Based on the results of the study, it was found that most teachers (40.1%) wanted training in the form of workshops, and 31.8% or 35 teachers wanted training that directly practices CAR. In addition
18.29% or 20 people want training in the form of personal guidance to teachers and the rest want training in the form of face-to-face or lectures.

3.2 Discussion

The results of the study obtained a fact that not all teachers have carried out the practice of classroom action research. Even the majority of teachers have never implemented CAR. In general, this happens because of reasons not to understand about CAR so that it does not have the ability to implement it. But there are also because of age factors and waiting for retirement so they don't need promotions anymore. While those who have carried out CAR are only a small part, and it is full of difficulties and takes a long time. The findings are quite disappointing given the importance of publication for promotion. Even though with a low level of knowledge, teachers can actually carry out research by collaborating with lecturers. The proof of classroom action research conducted by the teacher collaborating with Yonarlianto lecturers [10] at SD YPPK St. Theresia Buti resulted in publications at international seminars. The same is true of one of the teachers of Merauke State Middle School 2, namely Batheba who collaborated with Mark's lecturers to produce a work of the CAR scientific journal [11]. So collaboration with other teachers can actually help teachers to produce publications.

The majority of teachers in Merauke School’s believe that CAR is important and must be implemented. This shows that there is already awareness from the teachers about the importance of research even though this awareness has not been realized in real action. In addition, there are still those who consider CAR not mandatory. One of the factors is due to lack of motivation from the teachers to carry out research. Responding to such problems, it takes effort from the school leadership in this case the principal to be able to motivate the teachers regarding the obligation to research. This is because the principal's leadership influences the motivation and work discipline of the teacher [12]. With the existence of high work motivation, the assumption of the teachers that producing scientific work is very difficult to overcome.

Finding problems in a study is the most difficult part. But for teachers who are familiar with their students, problems with the class being managed will be easy to find. The biggest difficulty for teachers in research is in determining the title of CAR. For most teachers, assessing action research is very difficult to implement. Difficulties are generally felt in the practice of implementing actions in each class as well as the difficulty in compiling proposals. The interview results obtained that the teacher did not have much experience in carrying out learning for classroom action research. Though in fact in the learning process in research is not different from the routine learning in the classroom as usual. The main difference lies in changing the learning model as an action and observing it to observe the changes that occur. Changes to the learning model can also be done by utilizing learning technology as an improvement in learning variations. Speaking of learning technology, in fact teachers in Merauke have been able to utilize learning technology [13], except that they have not been maximized in using research. The difficulty of preparing proposals is generally caused by a lack of information or knowledge regarding the format of writing CAR.

The last part of the training model that is expected by the teacher shows that the teacher needs training that does not just stop in theory, but must be trained to the stage of preparing proposals and practices in their respective classes. Understanding the concept of action research and then continuing with the practice of CAR is needed by teachers in the hope that they will continue to be given assistance until the preparation of the final report.
4. Conclusion
The results of this study can be concluded that the teacher's ability in carrying out classroom action research is still low in the form of low participation (85%) in conducting research. The training needed by the teacher is in the form of assistance in understanding the concept of classroom action research and practical assistance in the preparation of research proposals.

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