Research Methodology Training for Middle School Teachers to Improve the Quality of Educational Research Proposals

Eka Murtinugraha[1*], Shilmi Arifah[2*]
Building Engineering Education Study Programme, Engineering Faculty, Jakarta State University
shilmiarifah@unj.ac.id
*Corresponding Author

ABSTRAK

Untuk menjadi seorang guru profesional menulis dan menerbitkan karya ilmiah adalah penting. Sebagian besar guru menganggap bahwa penelitian bukanlah suatu kewajiban yang perlu dilakukan dan dianggap sebagai hal yang sulit. Sehingga kegiatan pengabdian masyarakat ini difokuskan pada peningkatan keterampilan guru dalam menyusun dan mempublikasikan penelitian pendidikan melalui pelatihan metodologi penelitian. Kegiatan dilaksanakan di Pendidikan Vokasi (VE) Yayasan Pendidikan Islam Nurul Huda diikuti oleh 2 orang dosen sebagai pemateri dan 31 guru. Kegiatan pelatihan terdiri dari 3 tahap yaitu persiapan, pelaksanaan, dan evaluasi pelatihan. Hasil evaluasi kegiatan melalui penyebaran angket pre-test dan post-test diperoleh kemampuan guru dalam pengetahuan penyusunan bahan ajar sebesar 69,677% dan 88,226%, sehingga terjadi peningkatan sebesar 18,548%. Berdasarkan uji t sampel berpasangan, nilai Sig. (2-tailed) ρ-value adalah 0,000. Hal ini menunjukkan adanya peningkatan dalam penyusunan proposal penelitian pendidikan melalui pelatihan metodologi penelitian bagi guru di VE. Sehingga kegiatan pelatihan sangat efektif dalam meningkatkan kompetensi penyusunan proposal penelitian bagi guru VE. Kegiatan ini bermanfaat karena selain untuk menambah skill, kegiatan ini merupakan update ilmu dan pengalaman.

Kata kunci: *Metodologi Penelitian, Guru SMK, Proposal Penelitian, Pelatihan*

ABSTRAK

To become a professional teacher writing and publishing scientific papers is important. Most teachers consider that research is not an obligation that needs to be done and is considered a difficult thing. So that this community service activity is focused on improving the skills of teachers in compiling and publishing educational research through research methodology training. The activity was carried out at Vocational Education (VE) of Yayasan Pendidikan Islam Nurul Huda followed by 2 lecturers as presenters and 31 teachers. The training activities consist of 3 stages, namely preparation, implementation, and evaluation of training. The results of the evaluation of activities through the distribution of pre-test and post-test questionnaires obtained the ability of teachers in the knowledge of preparation of teaching materials by 69.677% and 88.226%, so there was an increase of 18.548%. Based on the sample paired t-test, the value of Sig. (2-tailed) ρ-value is 0.000. So, training activities are very effective in improving the competence in preparing research proposals for VE teachers. This shows that there is an increase in the preparation of educational research proposals through research methodology training for teachers in VE. This activity is beneficial because, in addition to adding skills, this activity is an update of knowledge and experience.

Keywords: *Research Methodology, Vocational Teacher, Research Proposals, Training*

INTRODUCTION

In learning activities, a teacher will definitely be faced with various problems regarding students, subject matter, and learning methods. In addition, teachers must also improve the quality of learning continuously so that student learning achievement is optimal (Ahmedani et al., 2020; Daryono & Rochmadi, 2020; Kim et al., 2019; Rahmatunisa et al., 2022). One of the strategic ways for educators to improve and or improve educational services for educators in the context of classroom learning is to carry out classroom action research (Ergenc, 2020; Pamungkas, 2019). As stated by Jestratijevic & Hillery (2022) that classroom action research has a fundamental purpose, which is to be used to improve/enhance teaching and learning

mechanisms. In terms of professionalism, classroom action research conducted by teachers is seen as a performance of a professional teacher to improve teaching performance (Grønlien et al., 2021; Waite et al., 2020; Yuliana et al., 2019).

The importance of educational research in learning is to improve the quality of education, improve the quality of the learning process (Ahdhianto, 2020; H. A. I. Almuslamani, 2020), develop teacher skills starting from the need to solve problems faced in the classroom (Prihantini, 2021), and foster a culture of research among teachers who accompanied by a self-correcting mechanism from the to improve teacher professionalism (Saifurrahman et al., 2021; Setambah et al., 2019). The functions of educational research as proposed Astiana (2022), Schmid & Garrels (2021), and Tulung (2022) a tool to solve problems carried out by means of diagnosis in certain situations, 2) a tool in job training, 3) a tool for introducing additional or innovative approaches to teaching, and 4) tools to improve communication between teachers in the field and academic researchers.

Muara Gembong is a sub-district in Bekasi Regency, West Java Province, Indonesia. This sub-district is a sub-district with an area and also the most end sub-district in Bekasi Regency. In this sub-district, there are several villages, one of which is a simple beach village. The simple beach village has several schools, ranging from elementary schools to high school and vocational schools. Most of the teachers in simple coastal villages have not produced scientific or research work. The main reason is the lack of knowledge of the importance of scientific forums and the importance of producing scientific papers or research (Ostad et al., 2019; Trust & Pektas, 2018).

To become a professional teacher of writing and publishing scientific papers is absolutely necessary (Meesuk et al., 2020; Ostad et al., 2019). Carrying out research activities and writing reports is an inseparable part of the profession of a teacher. Teachers are always required to innovate in order to create a pleasant learning atmosphere so that learning objectives can be achieved (Trust & Pektas, 2018; Youhasan et al., 2022). For most teachers, research is not an obligation that needs to be done. Research is considered a difficult thing. In addition, the lack of knowledge about research methodologies, scientific writing techniques, and mastery of research data analysis are also obstacles faced. Whereas research activities can improve the professional competence of teachers (Kerkhoff & Cloud, 2020; Meesuk et al., 2020).

Of the many types of research, Classroom Action Research (CAR) is the most possible and most appropriate type of research for teachers (Stecanela et al., 2019; Tulung, 2022). Classroom action research according to Almuslamani et al. (2020) is a reflective study to increase rational stability in carrying out tasks and deepen conditions in learning practices. CAR research is even a special icon of government programs in an effort to improve the quality of teachers and education personnel in general. Furthermore, Hermawan (2020) explains that the ability of teachers in the field of research can be improved through classroom action research (CAR) training in education units. Competent teachers will be able to write classroom action research (CAR), analyze data using software, and publish CAR research as a prerequisite for teacher promotion according to the Minister of National Education Regulation Number 16 of 2007 concerning Academic Qualification Standards and Teacher Competencies. Support from various stakeholders can facilitate teachers in conducting good CAR research (Gheorghe, 2022; Jestratijevic & Hillery, 2022; Peitz et al., 2021). This support can be provided through opportunities for self-development.

As explained by Pamungkas (2019) and Stecanela et al. (2019) a need for a rather long-time span in school so that teachers not only come to teach at school but are also given the opportunity to develop professional skills (Daryono et al., 2020). Seeing the importance of action research is the implementation of a teacher's creativity and criticality to what he observes and experiences every day in connection with his profession to produce better quality learning performance so as to achieve optimal results (Ergenc, 2020; Liu, 2021). However, it is unfortunate that there are still many teachers who have difficulty compiling CAR research proposals and have never done CAR research.

The ability of teachers to write scientific papers is in the high category, however, the experience of publishing scientific papers is still low so schools and the government need to create programs to help improve teacher publications (Syamsuddin, 2021). One alternative way to increase the publication of teachers' scientific works is to conduct research in groups and present them in

dissemination forums (Kingsley, 2019; Ruiz-Mallén et al., 2021). In addition, according to Stecanela et al. (2019), the teacher's efforts to improve scientific writing skills are participating in scientific writing training held by the education office and higher education institutions, through the MGMP group, teachers hold scientific writing guidance in the form of CAR research with the PAK team.

Teachers do not carry out CAR because they have difficulty in preparing CAR proposals as the preparation stage for CAR which includes all components from Chapter I to Chapter III. The difficulty in compiling this proposal was because the teachers did not have a clear understanding of how to prepare the correct CAR proposal, and did not dare to try for fear of being wrong (Nurhasanah et al., 2020; Palobo et al., 2021). This difficulty is caused by the absence of a mentor or assistant who can direct and motivate them to develop a CAR proposal (Gheorghe, 2022; Lundie et al., 2022; Meesuk et al., 2020). The absence of a mentor causes them to be insecure and not dare to try because they are not sure that the proposal, they will make is correct.

Based on direct observations and discussions with partners, several problems were encountered, namely: (1) 80% of teachers in Muara Gembong had never published scientific papers; (2) Most of the teachers only make scientific papers while in college, both undergraduate and postgraduate; (3) Weak understanding of teachers in terms of Research Methodology and processing research data through Statistics; (4) There is not a variety of research conducted by teachers. The most frequently conducted research is Classroom Action Research (CAR). In order to develop the quality of vocational teachers, Gheorghe (2022) and Peitz et al. (2021) developed a sustainable professional program. The components developed are self-development, scientific publications, and innovative works. In line with this development, this PkM activity is focused on improving the skills of teachers of the Bekasi Regency Building Engineering Vocational School in compiling and publishing vocational education research.

The objectives of community service for vocational teacher at the Yayasan Pendidikan Islam Nurul Huda are to 1) provide knowledge, insight, and understanding of educational research, and 2) to improve the ability of teachers to prepare proposals and publish educational research.

RESEARCH METHODS

Training Subject

Research methodology training activities for the preparation of educational research proposals for vocational teacher at the Yayasan Pendidikan Islam Nurul Huda on July 16, 2022. The training and mentoring activities were attended by 2 lecturers as presenters and 31 teachers as training participants. The service activities include: 1) providing knowledge, insight and understanding of educational research, and 2) improving the ability of teachers to prepare proposals and publish educational research at the Yayasan Pendidikan Islam Nurul Huda.

Activities are carried out in several stages, namely the stages of preparation, implementation and evaluation of training. The activity preparation stage includes coordination with trainer resource persons, preparation of the framework, technical implementation planning and preparation of tools and materials. Resource persons make training materials related to the preparation of research proposals and educational methodologies. At the implementation stage of the activity, namely the provision of research methodology training materials and training practices for the preparation of educational research proposals.

Each participant is provided with materials and modules for research proposals and educational methodologies so that they can be practiced independently. Furthermore, at the evaluation stage, it is carried out by providing pre-test and post-test questionnaires regarding training materials for preparing research proposals and educational methodologies. The evaluation stage is carried out to obtain an assessment and conclusion from the activities that have been carried out. The implementation of community service activities can be seen in Figure 1.
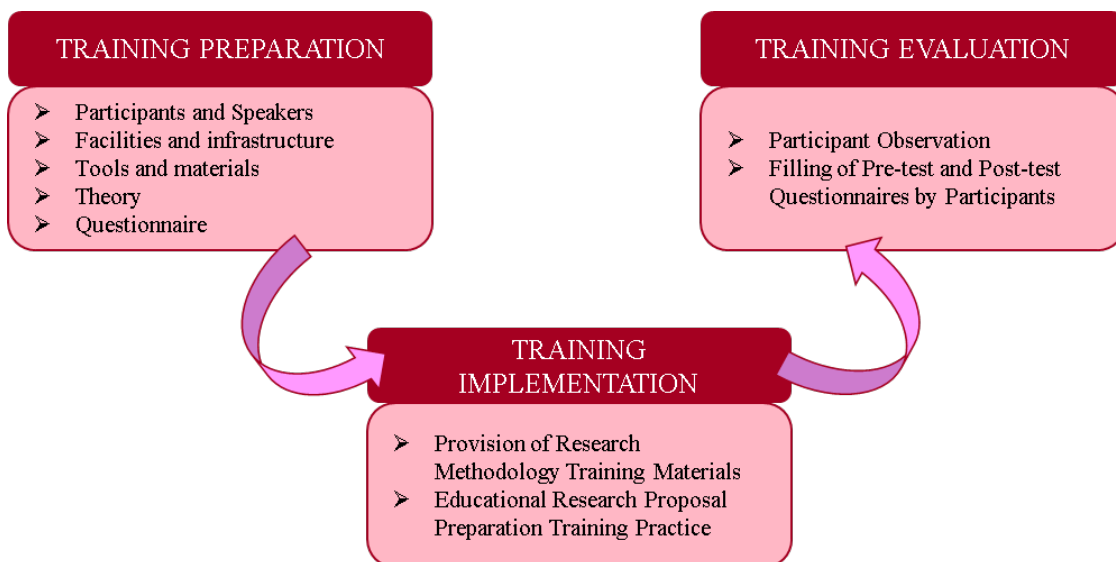
Figure 1. Flowchart of the Implementation of Research Methodology Training Activities

Data Collection and Research Instruments

To measure the success of this training activity, a questionnaire was given to each participant of the training. Filling out this questionnaire aims to determine the increase in participants' knowledge before and after participating in community service activities. The pre-test and post-test assessment instruments consist of 10 questions filled in by 31 teachers.

The instrument was arranged using a Likert scale of 1-4 with alternative answers of strongly disagree, disagree, agree, and strongly agree (Setyadi et al., 2021). The list of statements to measure the ability to prepare research methodology consists of 10 aspects, namely: (1) definition of methodology, (2) research steps, (3) identification of problems, (4) research hypothesis, (5) types of research, (6) research methodology, (7) Classroom Action Research (CAR), (8) report of CAR research, (9) the urgency of CAR research, (10) research novelty.

Analysis Method

The results of calculating the total knowledge score were calculated using a ratio measuring scale and analyzed by descriptive and inferential statistics. Descriptive statistical test to find the percentage of achievement of participants' abilities in the preparation of research proposals and research methodology. Inferential statistics to determine the increase in participants before and after being given materials and training in the preparation of research proposals and research methodology. Inferential statistics using the Paired Sample T-test from the acquisition of pre-test and post-test scores.

To perform the Paired Sample T-test, the data used must be normally distributed. The normality test used the Kolmogorov-Smirnov and Shapiro-Wilk if the value of Sig. (ρ-value) >0.05 then the data is normally distributed (Rosantono et al., 2021; Setyadi et al., 2021). The results of the Paired Sample T-test were determined by a significance value (2-tailed) <0.05 indicating a significant difference between the pre-test and post-test scores (Garin et al., 2017; Kriswanto et al., 2022; Razavipour et al., 2021).

RESULTS & DISCUSSION

The activity was carried out at the Yayasan Pendidikan Islam Nurul Huda on July 16, 2022. The training and mentoring activity was attended by 2 lecturers as presenters and 31 teachers as training participants. This community service activity aims to provide knowledge, insight and understanding about educational research. In addition, to improve the ability of teachers to prepare proposals and publish educational research. Activities are carried out in several stages, namely the stages of preparation, implementation and evaluation of training.

Preparation Phase

Preparatory activities carry out activities to carry out surveys to find out the location that will be the training venue and the

number of participants in the activity. Collecting data on prospective participants, assigning training speakers, training scenarios, facilities and infrastructure for training, tools and materials, and consumption. Furthermore, preparing accommodation for participants and presenters and instruments for pre-test and post-test, assignments for participants. Figure 2 shows the readiness of the participants to receive the training.

Figure 2. Preparation of Training Participants Research Methodology

Implementation Stage

At this stage the activity begins with the provision of material by the service team, namely R. Eka Murtinugraha, M.Pd and Shilmi Arifah, M.Pd. The training material consists of 10 learning outcomes, namely (1) definition of methodology, (2) research steps, (3) identification of problems, (4) research hypothesis, (5) types of research, (6) research methodology, (7) Classroom Action Research (CAR), (8) report of CAR research, (9) the urgency of CAR research, (10) research novelty. The definition of methodology material contains material about the introduction to the research methodology, namely the background, problem identification, problem boundaries, problem formulation, research objectives, and research uses. The research problem is divided into 3 sub-chapters, namely descriptive, comparative, and associative problems.

The types of research material contain material on types of research based on methods, namely survey, naturalistic, ex-post facto, experiment, and action research. The research methodology material contains material on population and samples, and research instruments and data analysis techniques. In the CAR material, it contains material about the definition, purpose and special characteristics. The report material for CAR research contains material on problems, theoretical basis and hypothesis submission, research procedures, and research results and suggestions for conclusions.

Renewal of material that is emphasized in training is on CAR research studies which are emphasized on vocational teachers. In addition to the research method that has not stated the stages and actions of each cycle and indicators of success, the results and discussion reports have not reported complete data for each cycle, changes that occur in students, teachers or classes as well as a discussion of the overall research results.

In addition, CAR was rejected because it was not clear what, how and why the action activities were carried out, it was not clear how the role of the evaluation and reflection results in determining the following cycles would be, as well as what was described in the usual learning report, there was no action that was a renewal of the activity which is usually done.

Submission of material is also emphasized on things that are needed in the CAR, which consists of at least 2 collaborators, photos of action activities, lesson plans (along with the methods or learning media used), action plans along with the selected action research model, notes for each cycle, and learning outcomes and descriptions of learning developments. In the implementation stage, there was an active interaction between the presenters and the training participants, as seen by the questions and answers and enthusiasm from the training participants.

Figure 3. Training Process Research methodology

Activity Evaluation Stage

Prior to the presentation of the material, a pre-test and post-test were conducted on the participants of the research methodology training. As a measure of the success of the training that has been given, before and after the implementation of the training and mentoring the trainees were given a questionnaire. The results of the recapitulation of the implementation using a questionnaire on the ability of teachers to carry out the practice of preparing educational research proposals at the Yayasan Pendidikan Islam Nurul Huda are shown in Table 1.

Table 1. Recapitulation of Research Methodology Training Results for Preparation of Educational Research Proposals

No	Statement	Pre-Test	Post-Test
1	Methodology is a scientific way to obtain data with a specific purpose and use	62.097%	83.871%
2	Finding problems, identifying problems, formulating problems, determining research variables and research paradigms are steps to conducting research	74.194%	94.355%
3	Researchers give boundaries, where researchers will conduct research is the understanding of problem identification	71.774%	89.516%
4	The research hypothesis is a temporary answer to the problem formulation	66,129%	93.548%
5	The types of qualitative, quantitative and combined research are types of research based on the type of data and analysis	67.742%	79.032%
6	In a study, CHAPTER III contains conclusions and suggestions	71.774%	95.161%
7	Classroom Action Research (CAR) is a practical research that aims to correct deficiencies in classroom learning by taking actions to improve the quality of learning	72.581%	92.742%

No	Statement	Pre-Test	Post-Test
8	*The CAR report contains the problems, theoretical basis, research procedures, research results, and conclusions*	69.355%	87.903%
9	*Collaborators, photos of action activities, lesson plans, action plans along with the selected action research model, cycle notes, learning scores and descriptions of learning developments are the things needed to do CAR*	74.194%	79.839%
10	*CAR will be accepted if what is described in the usual learning report, there is no action that is a renewal of the usual activities*	66.935%	86.290%
	Average	**69.677%**	**88.226%**

The results of the questionnaire filled in by the teacher on the first indicator related to the module coverage training material obtained a pre-test result of 62.903% and a post-test of 90.323%. In the definition of methodology indicator, the pre-test result was 62.097% and the post-test was 83.871%. In the research steps indicator, the pre-test result was 74.194% and the post-test was 94.355%. In the identification of problems indicator, the pre-test results were 71.774% and the post-test was 89.516%.

In the research hypothesis indicator, the pre-test results were 66,129% and the post-test 93.548%. In the types of research indicator, the pre-test results were 67.742% and the post-test was 79.032%. In the research methodology indicators, the pre-test results were 71.774% and the post-test 95.161%. In the CAR indicator, the pre-test result was 72.581% and the post-test was 92.742%. In the report of CAR research indicators, the pre-test results were 69.355% and post-test 87.903%. On the indicator of the urgency of CAR research, the pre-test results were 74.194% and the post-test was 79.839%. In the research novelty indicator, the pre-test results were 66.935% and post-test 86.290%.
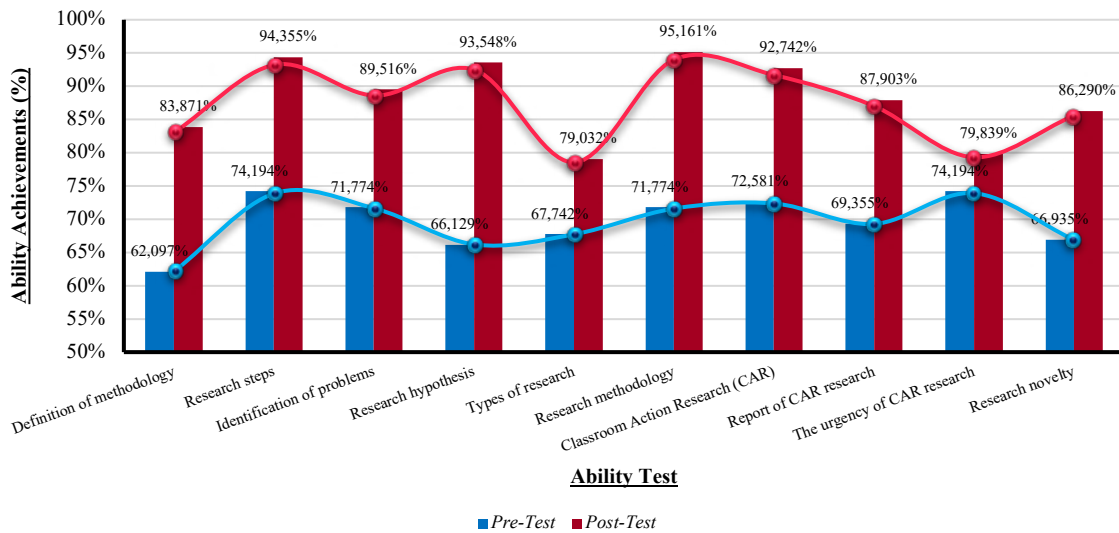

Figure 4. Results of the Ability Test of Training Participants on Pre-Test and Post-Test Scores

The results of the evaluation of activities through the distribution of pre-test and post-test questionnaires obtained the ability of teachers in the knowledge of the preparation of teaching materials by 69.677% and 88.226%, respectively. Participants rework the posttest after the research methodology training practice for preparing educational research proposals has been completed. Based on observations, participants took the posttest seriously and smoothly.

The average increase in the participants' pretest and posttest knowledge scores of 18.548% is shown in Figure 4. This activity is very useful because in addition to increasing the skills of preparing educational research proposals, this activity is an update of knowledge and experience.
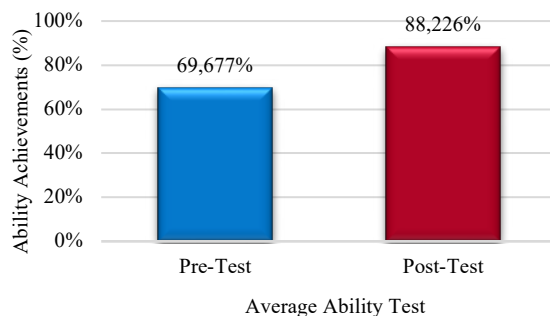
Figure 5. The Average Results of Achieving the Ability of the Training Participants

To perform the Paired Sample T-test, the data used must be normally distributed. So that the hypothesis made can be analyzed by using the Paired Sample T-test. The normality test used the Kologomorov-Smirnov test and the Shapiro-Wilk test. The results of the data normality test are shown in Table 2.

Table 2. Test of Normality

Variable	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistics	df	Sig.	Statistics	df	Sig.
Pre-Test	0.106	32	0.2 00	0.946	32	0.113
Post-Test	0.133	32	0.164	0.948	32	0.128

The basis for making the decision on the Normality test using Kolmogorov-Smirnov and Shapiro-Wilk is if the value of Sig. (ρ-value) > 0.05, then the data is normally distributed. The significance value of the Kolmogorov-Smirnov test on both variables was 0.200 and 0.164. While the value of Sig. the two variables using Shapiro-Wilk are 0.113 and 0.128. That is, both the pre-test and post-test scores of the trainees are normally distributed.

The results of the Paired Sample T-test to test the significance of improving the preparation of educational research proposals are presented in Table 3.

Table 3. Paired Samples T-Test

	Paired Sample Statistics				Paired Differences			
	Variable	Mean	N	Std. Dev.	χ diff.	t	df	Sig. (2-tailed)
Paired 1	Pre-Test	69,677	31	12,970	-18,548	8.210	30,000	0.000
	Post-Test	88.22 6	31	7.222				

The results obtained in this community service activity are vocational teacher at the Yayasan Pendidikan Islam Nurul Huda with enthusiasm from the beginning to the end of the event. Based on the results of the pre-test and post-test analysis using the Paired Sample T-Test test, it was obtained that the p-value was 0.000 so that there was an increase in participants' knowledge after participating in research methodology training activities in the preparation of educational research proposals through teachers, namely from the average knowledge score of 69.677% (pre-test) increased to 88.226% (post-test). So that the difference in the average increase in the ability to compose research proposals and educational methodologies is 18.548%. Vocational teacher at the Yayasan Pendidikan Islam Nurul Huda have knowledge of educational methodologies, research steps, research hypotheses, types of research, Classroom Action Research (CAR), report and the urgency of CAR research, and research novelty.

The results of this study are supported by Satyawati et al. (2021) research entitled training and mentoring in the preparation of online action research proposals for teachers at the Yayasan Eben Haezer Salatiga. The research aims to: 1) provide teachers with understanding and insight into classroom action research, 2) improve the ability of teachers to develop classroom action research proposals. The activity was carried out at the Yayasan Eben Haezer, Salatiga with a total of 20 teachers. Chapter I Introduction successfully carried out mentoring and resulted in Chapter I proposals as many as 20 people (100%). The On-2 activity, namely mentoring practices in preparing CAR proposals for Chapter II, has carried out mentoring and resulted in the preparation of Chapter II proposals as many as 18 people (90%). While the On-3 activities, namely practical mentoring in preparing Chapter III resulted in the preparation of Chapter III proposals as many as 9 people (45%). Meanwhile, the preparation of a complete proposal up to the CAR instrument and the measurement of achievement has only been completed by 2 people (10%). Based on the results of the mentoring in the preparation of these proposals, only 2 proposals were complete, feasible and ready to be implemented in the implementation of CAR in the classroom. The obstacles faced by the trainees who have not completed the preparation of the proposal to completion are mostly due to busy teaching and concurrent with the preparation for the end of semester test.

Furthermore, research by See et al. (2022) on training in the preparation of classroom action research proposals for teachers at SDI Tibakisa supports the results of this research. Based on the results of the team's assessment of the abilities of the SDI Tibakisa teachers in accordance with the contents of the proposals that have been presented as illustrated in table 1 above, it shows that on average the teachers have been able to meet the 4 assessment indicators. of the 14 teachers, there were 10 teachers or 71, 43% had scores in the good category, while as many as 4 teachers or 28.57% were in the fairly good category. Teachers who have the ability to prepare CAR proposals that fall into the good category become very positive capital for these teachers to continue their proposal preparation until they reach the stage of research activities as a manifestation of the proposals that have been prepared. Meanwhile, for teachers who have good enough ability in compiling proposals, of

course they will continue to strive to improve their understanding, so that CAR activities will continue to be carried out.

In addition, research by Rosmaliwarnis (2021) related to efforts to improve teacher competence in preparing Classroom Action Research (CAR) proposals through workshops has supported the results of this research. This PTS was carried out in two cycles consisting of four stages: planning, implementation, observation and reflection. The indicator of success in this study is that the teachers at SMPN 2 Luak are 80% able to prepare CAR proposals by achieving a minimum average score of Good. The results obtained are as follows; 1) The increase in the indicators for CAR proposals from cycle I to cycle II was 25.31%. 2) The increase in the competence of teachers in preparing research proposals individually is 27.25% with the result that all teachers get good grades. Therefore, the indicators of success have been exceeded and the School Action Research (SAR) was declared successful. Based on the research findings, it can be concluded that the Workshop is very effective in an effort to improve the competence of teachers at SMPN 2 Luak in preparing CAR proposals.

CONCLUSION & SUGGESTION

Based on the research methodology training in the preparation of research proposals that have been carried out by the VE of Yayasan Pendidikan Islam Nurul Huda, the implementation uses three main activities, namely preparation, implementation, and evaluation of training. The evaluation stage is carried out by distributing pre-test and post-test instruments related to understanding ability tests in the preparation of educational research proposals.

The results of the evaluation of activities through the distribution of pre-test and post-test questionnaires obtained teacher abilities of 69.677% and 88.226%, so there was an increase in the ability of 18.548%. Based on the sample paired t-test, the value of Sig. (2-tailed) ρ-value is 0.000. This shows that there is an increase in the preparation of educational research proposals through research methodology training for teachers in VE.

The suggestion we could give for the authorities, first it is for school principals to implement training in the form of workshops as one of the coaching promotions for teachers. Secondly, for teachers to be able to apply the knowledge gained to improve and develop their

professional competence because it is an inseparable part of the learning system.

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